

# MARINE REVIEW.

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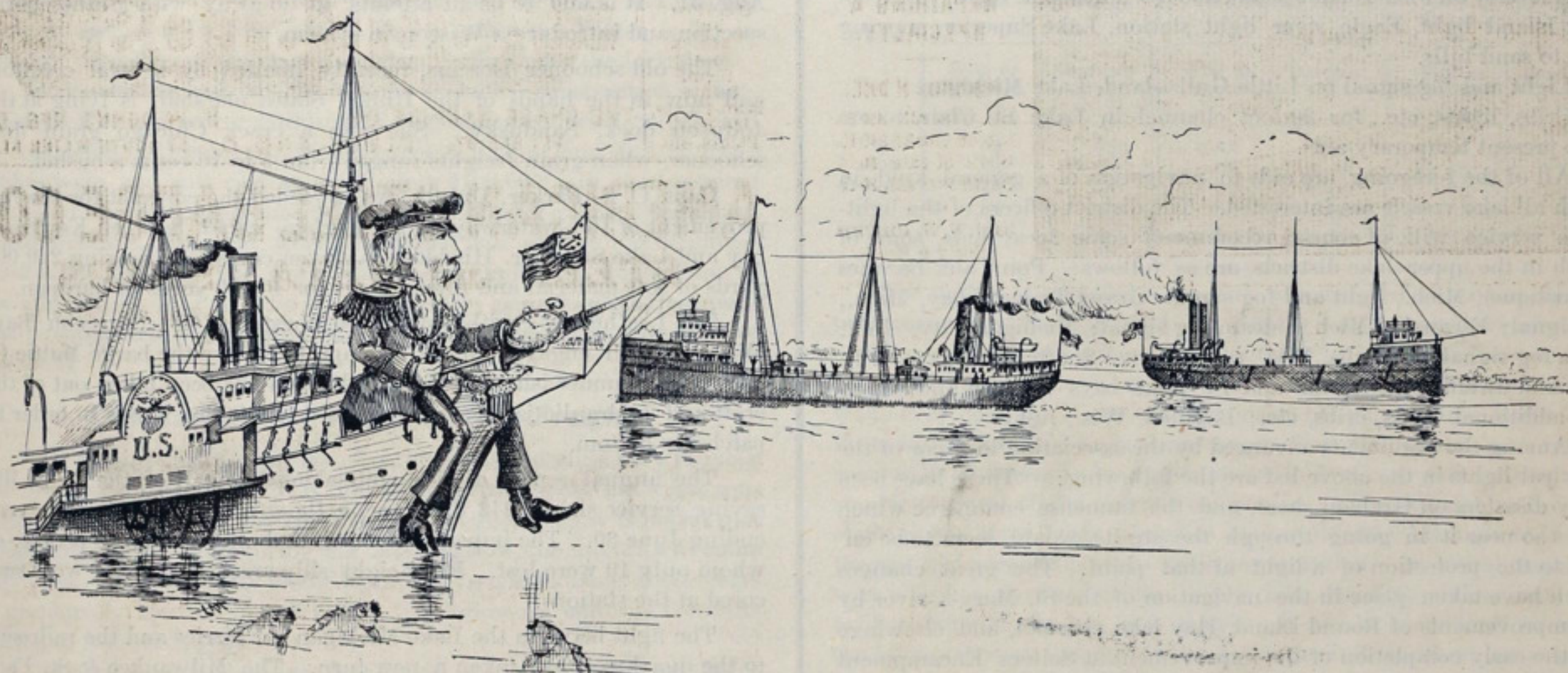
## The Freight Situation.

The ore freight market has shown no material change during the past week. The movement of ore from the receiving ports to the furnaces is very light and the fact that dock space is getting scarce is causing shippers end less trouble. Some of them have stopped taking wild tonnage altogether and are kept very busy taking care of the contract boats. Ship pers have made no effort to further reduce rates and they still hold at 60 cents from the head of the lakes, 50 cents from Marquette and 40cents from Escanaba. Owners are hopeful of getting all their ore, but much will depend on the condition of the docks later in the season, for if there is not room to store it and shipping orders are not forthcoming the ore can not be brought down.

Quite a few small schooners have been laid up during the pats week and if it was not for the active movement of grain at Chicago during that time many of the larger boats would have been forced into ordinary as they could not have found ore cargoes.

On account of the large number of boats that are on the market for coal cargoes, rates have been cut to 25 cents to all ports on soft coal and it is said that rates have been shaded on consorts. Hard coal rates from Buffalo have settled at 20 cents and even at that rate boats are more plentiful than cargoes. Some owners have reduced wages in

described we would, with the Howden draft, use a boiler only 12 feet 6 inches diameter by 12 feet long, with only two 44-inch furnaces and steam the same, 170 pounds. The weight of this latter boiler complete, including air heater, retarders, engine, blower and air duct would be 113,289 pounds—a difference in favor of the Howden boiler of 23,711 pounds, or more than 11 tons for the same power. It is our experience that a boiler of 12 feet 6 inches diameter with Howden draft is amply large to furnish, without forcing, steam for 1,000 horse power, and take the place of a shell of 14 feet 3 inches using natural draft. With a boiler of the dimensions we have noted, using Howden appliances, the steamer Aragon steamed easily at her maximum of 998 horse power. To prove this, the cuts were pulled off with the steam at 140 pounds, and in a short time, with the engines running wide open, the steam went up to 160 pounds, and forced open the safety valve. It was easily held at this point. The Aragon's boiler is 12 feet 6 inches diameter by 12 feet long, and her engine is a triple, with cylinders 17, 27½ and 46 inches diameter by 36 inches stroke. Last winter we took out of the steamer Progress two firebox boilers, 9 feet diameter by 16 feet length. These were replaced by a cylindrical boiler fitted with Howden appliances. The cylindrical boiler was of the size previously referred to, 12½ by 12 feet, and it furnished ample



THE SOO RIVER HANDICAP.

order to keep their boats in commission but the movement is not general, and most of the large owners having contract ore and coal to move are paying the schedule adopted by the Lake Carriers' Association last spring.

Contract boats have been the balance wheel that kept the fleet in motion, but now one of the largest shippers whose docks are overloaded has made arrangements to hold back a certain amount of contract ore from month to month. If room to receive it is available it will be carried this fall but it may be held over until next season.

## Big Difference in Boiler Weights.

As a result of special attention directed of late to the Howden system of hot draft, the Detroit Dry Dock Co. has been receiving inquiries regarding this draft from engine builders as well as vessel owners. A recent inquiry from a well-known engine builder on the lakes had reference to weights and sizes of cylindrical boilers fitted with the Howden draft, as against weights and sizes when only natural draft is used. The answer was in substance as follows: "We will take for natural draft a boiler 14 feet 3 inches diameter by 12 feet long, with three 45-inch furnaces and 170 pounds steam. This bare boiler with water would weight about 137,000 pounds. To get an amount of power equal to that contemplated with the boiler just

steam for a double steeple compound engine with high pressure cylinders of 22 inches diameter. With her new equipment the Progress drew 5 feet less aft than she was drawing previous to the change, and her cargo capacity has been increased about seventy-five tons. In addition to this she is saving in fuel about forty tons on a round rip from Chicago, and her speed is increased through having ample steam.

## Seven Miles, With or Without Currents?

Editor of the MARINE REVIEW:

The new law regulating speed in the Sault river does not seem to take currents into consideration. There are places in the river, where the current ranges from three to six miles per hour. Suppose it is three miles, then do I understand the boat's wheel is to be worked to a speed of four miles. In some laws I think you will find speed of boats is given as water speed and not in the time it takes to pass any given stretch of shore. If this is the case in the present regulations the boat could run seven miles an hour through the water, and the current would add three miles per hour, making a total of ten miles an hour.

Yours truly,

F. MORELLE.

Cleveland, O., August 3, 1896.



### New Aids to Navigation.

Officers of the Lake Carriers' Association who have had in hand for some time past the preparation of a list of aids to navigation for which appropriations will be sought at the next session of congress, have about agreed on the different lights, fog signals, etc. The list which follows may be changed somewhat after further conference and correspondence with the light-house board and district officers of that board on the lakes but the changes will not be important:

Lighted buoy or other suitable light on Graham shoal, Straits of Mackinaw.

Light and fog signal on Middle island, Lake Huron.

Gas buoy or small light-ship to replace the can buoy at the turning point in Mud lake, St. Mary's river.

New range lights and three gas buoys to mark the channel in the upper St. Mary's river, between Point Iroquois and Round island.

Light and signal on St. Martins' reef, Lake Huron.

Light and signal on Scarecrow island, Lake Huron.

Light and signal at Crisp's point, west of Whitefish point, Lake Superior.

Light and signal on Bark point, Lake Superior.

Light and signal on Rock of Ages, Lake Superior.

Light and fog signal on Hat point, Lake Superior.

Light and fog signal on Peshtigo shoal, Green bay.

Two lights or gas buoys on Gravelly island shoals, Green bay, one at present location of red can and the other at black can buoy.

Light-ship at Lansing shoal, north of Squaw island, Mackinaw straits.

Lights and stakes for new Ballard's reef channel, Detroit river.

Gas buoy on Fisherman's shoal, about 5 miles S. E. by E.  $\frac{1}{2}$  E. from Rock Island light, Eagle river light station, Lake Superior, moving light to sand hills.

Light and fog signal on Little Gull island, Lake Michigan.

Cribs, lights, etc., for 20-foot channel in Lake St. Clair, to replace present temporary aids.

All of the foregoing are aids to navigation of a general kind, in which all lake vessels are interested. The district officers of the light-house service will, of course, recommend some local aids, some of which in the upper lake districts are as follows: Point aux Barques (Manistique), Mich., light and fog signal; Grand Traverse bay, Mich., fog signal; Escanaba, Mich., steam fog signal; Michigan City, Ind., steam fog signal; Menasha, Wis., range lights; South Milwaukee, Wis., light and dwelling; Superior and St. Louis bays (Duluth and Superior), additional lights, cribs, etc.; Bayfield, Wis., light.

Among the arguments advanced by the association in favor of the principal lights in the above list are the following: "There have been many disasters on Graham shoal, and the immense commerce which passes so near it in going through the straits, would seem to be entitled to the protection of a light at that point. The great changes which have taken place in the navigation of the St. Mary's river by the improvements of Round island, Hay lake channel, and elsewhere and the early completion of the improvement at Sailors' Encampment and other points, will enable lake vessels to load much deeper in the St. Mary's river within the next few weeks. The rapid increase in the commerce of that river, and the enormous size of many of the boats now using it, and which will soon have a considerably increased draft, will certainly justify the comparatively inexpensive improvements at Round island and Mud lake.

Up to this time the light-house board has not been very enthusiastic in recommending a night light at Middle island, their objection being based upon the fact that other lights are not far distant. The fact, however, that the entire commerce of the lakes passes close to Middle island, and that abreast of that island is the turning point where vessels shape their course for the Straits of Mackinaw or Detour; also the fact that there have been many strandings upon the island and that vessels are accustomed to run in behind the island for a harbor of refuge in the day time, and would do so in the night time if they had a light, would seem to justify us in asking for a light at this point.

Vessels carrying ore to Tonawanda are now loading to 13 feet 6 inches. Since May 1, 128 vessels have been unloaded at the Niagara furnace dock of the Tonawanda Iron & Steel Co., where the addition to their Brown hoisting plant is keeping up the reputation for rapid work which this dock enjoys.

### Around the Lakes.

C. A. Chamberlain bought the barge Sonora for \$260 at Detroit.

The tug Wisconsin will be sold at Toledo to satisfy a \$925 claim in the hands of the United States marshal.

The Waverly was released from Plum island by the Escanaba wrecking tug Monarch. Three hundred tons of ore were lightered on the Argo.

The Sheriffs wheel recently placed on the steamer Colonial is said to have increased her speed one-half mile per hour. The next steamer to receive a a Sheriffs wheel will be the R. R. Rhodes.

The new steel steamer Senator carried 238,062 bushels of oats, 3,808 net tons, on her first trip to Buffalo drawing 13½ feet. She has a tripping device for letting go of the small anchor at the stern.

The steamer Raleigh, laden with steel billets from Chicago to Cleveland, broke her crosshead and crosskey and was picked up near Mackinaw City by the tug Aldrich. She was towed to Detroit for repairs.

Hingston & Woods, of Buffalo, have been awarded the contract for 50,000 yards of channel dredging, riprapping the north pier at Erie and removing the sunken tugs Annie Laurie and Pacific from Erie bay.

A Detroit Journal reporter was allowed to look through the footings book of the Adams fleet to note that presidential years are not poor years. With the exception of this year, they are above the average since 1880.

Employees of Superior grain elevators, which have 12,700,000 bushel capacity, have been notified that they will not be needed after Aug. 31. It is said to be an attempt to do away with Minnesota inspection and introduce a Wisconsin system.

The old schooner Roscius, recently libelled by several creditors and now in the hands of the United States marshal, is lying at the Johnson dock, Sandusky. She was a crack Chicago grain fleet schooner, when grain freights ranged from 5 to 10 cents a bushel.

Capt. C. S. Barker, Duluth, was awarded the contract for the improvement of the waterway in the Portage canal, between Kewenaw bay and Lake Superior. His bid was eleven cents for dredging 240,000 yards of soft material and fifteen cents for 40,000 yards of hardpan.

The Leathem & Smith Towing & Wrecking Co., Sturgeon Bay, Wis., are still engaged in an attempt to release the barge Mattie C. Bell from Summer island. Most of the coal has been taken out of the craft and hydraulic jacks are being used to lift the wreck in order to patch her bottom.

The annual report of Superintendent Kimball of the U. S. life saving service shows 242 disasters on the great lakes during the year ending June 30. The imperilled vessels had on board 2,048 people, of whom only 10 were lost. Fifty-eight shipwrecked persons were succored at the stations.

The fight between the Lake Michigan car ferries and the railroads to the northwest has taken a new turn. The Milwaukee & St. Paul has cut its lumber rate from Menominee river to 7 cents per hundred pounds, or about \$1.65 per thousand feet on lumber laid down in Chicago. The old lumber rates were from 10 to 12 cents. The ferry lines have been crowded with lumber for several months.

Letters bearing the following names await claimants at the marine post office, Detroit: W. J. Beaubien, John Rex Brown, Capt. H. Buckley, James Conde, Fred Coleman, Louis Carey, Louis M. Carey, William Cuthbertson, John H. Cook, Dan Corcoran, J. P. Demott, Henry C. Dubay, Joseph Duncan, James Dunsmore, Martin Doyle, Peter Erickson, Henry Foneuff, Capt. Wm. Ferguson, John C. Fritz, John Gough, John Guthier, James Galloway, Samuel Kamworthy, Harry J. Kelley, John Lubbreich, Peter Lovely, George Leighton, Chas. Lindsey, Frank McCormick, T. Sim, James Monroe, Theodore Myers, David More, John P. McAdams, Dan McDonnell, Mike Peshick, J. E. Parker, Willie Sylvester, Philo Smith, Frank Smith, W. A. E. Smith, Fred Shutte, Philo G. Smith, James Stapleford, Wilnrad Therrien, Capt. Thos. Tobin, Gust Williams, Clemens Yeschka, Matt Yipe.

Ask agents of the Nickel Plate road about the special train excursion to Niagara Falls, August 8 at 10 p. m. \$3.50 for the round trip. Tickets good returning until August 10 on special or regular trains.

223-Aug. 8.



### Facts About the New Soo Lock.

The new 800-foot lock at Sault Ste. Marie was officially opened by the revenue cutter Andrew Johnson, and the harbor improvement steamer Hancock locking through 10:30 a. m., August 3.

Work on the lock was commenced on May 4, 1887, when the first dipperful of earth was excavated for the cofferdam.

Dimensions of the new lock are 800 feet long, 100 feet wide and 21 feet deep. The side-walls are 1,100 feet long. From the east end for 282 feet the walls are 45 feet high, and from that point westward they are 43 feet high. The walls are 29 feet wide at the base and retain this width for 10 feet, when by five two-foot offsets five feet apart they are narrowed to 10 feet in width. At either end the walls are 36 feet wide from base to top. The cut stone for facing is of the best Kelley-island limestone, and was transported here in the rough. The faces of the lock wall consist of 23 courses. From courses 2 to 22 the stones were cut six feet long, three feet wide and two feet thick, part of the first course and the capping course being 1½ feet thick. The cost to the United States for the masonry was \$1,085,469.

In the basement of the power-house is situated two 30 horse-power turbines, which will drive three three-plunger single-acting high-pressure pumps that will deliver pressure fluid to loaded accumulators, where it will be stored under a pressure of 300 to 500 pounds per square inch, ready for use, and delivered to the engines as required. The exhaust, or discharge, from the engines will be returned by means of a separate set of piping to a tank in the engine-room and used continuously. The pressure fluid will be a limpid mineral oil, and will be used during the entire season. This will be different from the present lock, which uses water pressure in summer and oil during cold weather. The lock chamber can be filled and emptied when in operation in from six to seven minutes. Water is let in through six culverts, which run longitudinally under the lock floor.

In connection with the lock, there is under construction a magnificent office and power building of cut stone and brick, which will be completed in December. It is 81 feet 6 inches long and 80 feet 9 inches wide, and will cost approximately \$100,000. In the basement is located the operating machinery and pumping plant. Including the approaches, the great work completed will cost in the neighborhood of \$5,000,000. The work was begun under the supervision of the late Col. O. M. Poe, who lived to see the great undertaking practically completed. Gen.-Supt. E. S. Wheeler had active direction of the work.

### Comparison of 1893 and 1896 Freights.

The present condition of lake freights brings to mind very forcibly the low freights of 1893. It is interesting to note that the worst condition prevailed during the early part of August, and it is hoped that a similar improvement during the latter part of the month will come this year. The similarity of the slump in freights during these years is graphically shown by reprinting the following editorial from the REVIEW, August 3, 1893:

"If owners of the business fleet would only get together and agree to lay up for 30 or 40 days, owners of boats having contracts would repudiate them, so that there would be no movement whatever, why there might be some hope, but such an agreement is about as probable as the owners getting together and dividing their earnings, share and share for the fortunate and unfortunate. The gradual shutting down of mines, and the decrease of stock piles give no hope in iron ore, a meagre supply of coal at 30 and 40 cents is nearly as bad, and while there is a rumor of Chicago elevators being emptied it was stated that this could be done at a cent a bushel all around. It was said that rates on ore could not go below 45 and 50 cents, but there is a suspicion that the 45-cent rate has been cut. Except in the cases of a few of the largest boats that are furnished all they can carry, business at these rates is done at a loss. Just how long the Jack-o-lantern of a possible improvement will be followed is hard to tell."

With very few changes it would be a correct comment on the present condition. Some of the rock-bottom rates of August, 1893, are as follows: Ore from Ashland and Two Harbors, 50 cents, and from Escanaba, 40 cents; Chicago grain rate 1 to 1½ cents, and the coal rate, 30 cents. The improvements that come during 1894 and 1895 are shown by the rates for August, 1894, ranging from 60 to 80 cents on ore from the head of the lakes, 55 to 65 cents on ore from Marquette, and 40 to 50 cents on ore from Escanaba, coal ranging from 40 to 55 cents and Duluth grain at 2½ cents. In August of 1895,

90 cents was paid on ore from the head of the lakes, and 3 cents on grain. Early in September of 1893 ore rates had advanced to 60 cents from the head of the lakes and 50 cents from Escanaba. The first week in October of that year \$1 was paid on ore from the head of the lakes, and the Duluth wheat rate was 3 cents and Chicago 2½ cents. Even with the overproduction of tonnage of that year, there was no extra addition of capacity for 40,000 tons to confront the lake carrying trade.

During the fall of 1893 there was considerable talk of a schedule of minimum freight rates being adopted by owners. Although it would not be within the jurisdiction of the Lake Carriers' Association to have anything to do with freight rates, it was thought it could be brought about through a general agreement. A number of owners, shippers and brokers were interviewed, and the following was considered a fair schedule:

On ore from ports at the head of Lake Superior to Lake Erie ports.....	\$1.05
On ore from Escanaba and Gladstone to Lake Erie ports.....	75
On ore from Marquette to Lake Erie ports.....	95
On coal from Lake Erie ports to head of Lake Superior.....	50
On coal from Lake Erie ports to Escanaba and Gladstone.....	45
On coal from Lake Erie ports to Manitowoc.....	50
On coal from Lake Erie ports to Milwaukee.....	55
On coal from Lake Erie ports to Chicago.....	60
Minimum rates on grain to be equivalent to rates on ore.	

Conditions that have prevailed since then would probably necessitate the revising of this schedule, as the average rates for the last five years are as follows:

YEAR.	ESCANABA.		MARQUETTE.		ASHLAND AND OTHER PORTS AT THE HEAD OF LAKE SUPERIOR.	
	Wild or daily rate.	Contract rate.	Wild or daily rate.	Contract rate.	Wild or daily rate.	Contract rate.
1891	84	65	1 02	90	1 11	1 00
1892	74	1 00	98	1 15	1 15	1 25
1893	56	85	71	1 00	77	1 00
1894	46	60	60	80	78	80
1895	73	55	92	75	1 13	80

The matter of adopting a schedule was dropped as soon as the improvement came, and as long as slumps are followed by advances nothing will be done. It is thought, however, by some that the continued increase of the big fleets of the iron mining companies, such as the whaleback fleet, the Minnesota and many others, with the Rockefeller fleet, which bids fair to become larger than the others, that freight rates will of necessity be systematized, and agreements entered into similar to those of the railroad companies. This will not be brought about unless some large owner or broker devotes his time to it, and throws his personality into some organization. It would require a man who has shown capacity in the lake business and a man of a caliber that commands a high salary. It would be difficult to enlist the talents of such a man in what in one form or another, has so often proved a humming bird chase in the past.

The Sir William Fairbairn, the longest vessel on the lakes, and lacking but 2½ feet in beam of being the largest vessel on the lake, was launched by the Detroit Dry Dock Company, Saturday. Her engines are 24, 38 and 64 with 42 inches stroke, and the two boilers are 14½ by 11½ feet. This is smaller power than in any of the Bessemer fleet, but it will be more than made up by the addition of Howden hot draft system. None of the others will have this, and this will give an excellent opportunity for comparison. The water bottom will hold 2,000 tons of water. Her shapes, if laid out in a straight line, would stretch away 17 miles and 4 rods, and her plates would stretch out 7 miles, 38 rods and 6 feet. There were driven into her hull 415,553 rivets and their combined length is 622,905 inches, equal to 9 miles and 266 rods. Drawings and a full description of the Fairbairn appeared in REVIEW of July 30. The John Ericsson, another of the Bessemer ships, will leave the yard of the American Steel Barge Co. some time next week, but her tow barge will not be ready for a month. This steamer and barge will make up the largest tow on the lakes, and will carry upwards of 10,000 tons on 15 feet draft.

The extension of the Cleveland & Pittsburgh Railroad to Beavertown Valley opens up new coal fields for lake shipment. J. A. Biedler of Cleveland is interested in one company that will open mines.



### Lake Superior Commerce—Unparalleled Shipments.

A comparison of the movement of grain and ore from Lake Superior and coal up-bound to Aug. 1, this season with 1893 will show many points of similarity. Both years show much heavier shipments up to this date than is shown in 1894 and 1895. The shipment of grain other than wheat to Aug. 1 is 9,723,713 bushels, nearly 8,000,000 bushels greater, and wheat shipments are 4,000,000 bushels ahead of 1893, and 7,000,000 greater than 1894 and 1895 shipments together. Shipments of grain other than wheat for the whole season of 1895 was only 8,328,694, a million and a half tons less than shipments to Aug. 1 this year. The total shipment of wheat for the season of 1895 was 46,218,250 bushels and Aug. 1 only found 8,959,991 bushels shipped, about one-fifth. Estimating the Lake Superior movement of wheat for the full season of 1896 at 50,000,000 bushels, 4,000,000 greater than last year, it is found that over half of the estimated shipments have been made, 25,937,226 bushels having shipped to August 1. Iron ore shipments shows an increase of 460,686 tons over shipments to Aug. 1 last year. Anthracite and bituminous coal shipments are over 671,574 tons greater.

#### MOVEMENT OF PRINCIPAL ITEMS OF FREIGHT TO AND FROM LAKE SUPERIOR.

ITEMS.	To August 1, 1896.	To August 1, 1895.	To August 1, 1894.	To August 1, 1893.
Coal, anthracite, net tons.....	176,301	143,893	245,892	1,501,210*
Coal, bituminous, net tons ..	1,301,796	662,630	286,795	.....
Iron ore, net tons.....	4,471,226	4,010,540	3,077,623	1,927,793
Wheat, bushels.....	25,937,226	8,959,991	10,882,506	21,651,133
Flour, barrels.....	3,040,782	3,540,807	3,360,410	2,753,769

\*Coal—Anthracite and bituminous.

Total movement of all kinds of freight, shown below, to and from Lake Superior to August 1, 1896, is 8,166,124 tons, nearly two million tons greater than to August 1, 1895, and over three million tons greater than on the same dates in 1893 and 1894.

#### REPORT OF FREIGHT AND PASSENGER TRAFFIC TO AND FROM LAKE SUPERIOR, FROM OPENING OF NAVIGATION TO AUGUST 1 OF EACH YEAR FOR THREE YEARS PAST.

##### EAST BOUND.

ITEMS.	Designation	To August 1, 1896.	To August 1, 1895.	To August 1, 1894.	To August 1, 1893.
Copper.....	Net tons...	60,530	53,992	44,291	42,352
Grain.....	Bushels....	9,723,713	2,859	1,222,246	1,299,343
Building stone.....	Net tons...	9,255	12,520	12,401	11,520
Flour.....	Barrels....	3,040,782	3,540,807	3,360,410	2,753,769
Iron ore.....	Net tons...	4,471,226	4,010,540	3,077,623	1,927,793
Iron, pig.....	Net tons...	13,673	12,037	10,421	9,308
Lumber.....	M. ft. b.m.	344,647	357,180	325,966	244,258
Silver ore.....	Net tons...	.....	100	372	835
Wheat.....	Bushels....	25,937,226	8,959,991	10,832,506	21,651,133
Unclassified freight.	Net tons...	96,257	73,609	57,937	54,669
Passengers.....	Number....	8,942	7,081	6,208	4,024

##### WEST BOUND.

Coal, anthracite.....	Net tons...	176,301	143,893	245,892	1,501,210*
Coal, bituminous.....	Net tons...	1,301,796	662,630	286,785	.....
Flour.....	Barrels....	62	150	753	500
Grain.....	Bushels....	1,109	28,650	500	300
Manufactured iron..	Net tons...	44,397	31,317	10,034	30,793
Salt.....	Barrels....	113,107	127,515	80,699	91,442
Unclassified freight.	Net tons...	146,866	125,350	106,269	120,108
Passengers.....	Number....	9,104	7,322	6,468	4,783

\*Coal—Anthracite and bituminous.

SUMMARY,	To Aug. 1, 1896.	To Aug. 1, 1895.	To Aug. 1, 1894.	To Aug. 1, 1893.
West bound freight of all kinds, net tons.....	6,471,208	5,393,065	4,434,188	3,418,328
East bound freight of all kinds, net tons.....	1,694,916	983,347	561,145	1,694,850
	8,166,124	6,376,412	4,996,033	5,113,178

The total number of vessel passages to Aug. 1, 1896, was 10,074 and the registered tonnage 9,168,895.

The Y. P. C. U. of U. S. Convention will be held at Omaha, and the Nickel Plate road will offer excursion tickets for sale, August 16th to 24th.  
234 Aug. 23.

### Cable, Gas and Water Pipe Obstructions.

Apropos to the suit against the steamer Helena for pulling up a gas main in the Detroit river while hoisting anchor, mentioned in the REVIEW of July 30, section 5263 of the revised statutes authorizes telegraph companies to construct lines "over, under, or across the navigable streams or waters of the United States; but such lines of telegraph shall be so constructed and maintained as not to obstruct the navigation of such streams and waters."

The obligation of such company laying lines under this statute is "not only to lay the cable in such manner that it would not catch the bottom of vessels navigating that water in the ordinary method, but also to maintain it in that condition."

In the City of Richmond case, decided in 1890 by Judge Brown of the southern district of New York, one of the contentions was that the cables were more or less immersed in the mud at the bottom, and therefore were no obstruction to navigation. The court said that the soft, yielding "navigable mud" is not to be confounded with the solid bed of the stream. It admits of navigation by steamer through it, and forms a part of the available draught of water, and as such it is counted on and constantly used." And again, "Every inch that can be utilized is needed, and should be scrupulously preserved for the uses of navigation." The circuit court of appeals for the second circuit affirming this case (59 Fed. 365) say: "Whatever the cause of the accident in question, the owners of the cables laid across this navigable stream has failed to show that it did not happen because of any failure to maintain them in such a way as not to obstruct navigation; and as the owners of the steamship have shown that she was navigating when she encountered them, the person who undertook to maintain the cables so as not to obstruct navigation has failed to sustain the burden of proof which the accident cast upon him." The court further says: "Each case should be disposed of in its own facts; and it may be taken as a safe rule that the degree of obstruction will vary with the character and extent of navigation." This being the rule as to foreign matters specially authorized by congress to be placed in navigable streams, no less stringent rule must be applicable to gas pipes from whatever source the authority for placing them there may come. It seems to require knowing negligence to warrant a recovery, or some reckless disregard of property rights after the striking—that is, unnecessarily adding to the damage.

### Wanton Destruction Claimed.

Editor MARINE REVIEW: I am in receipt of a marked copy of the REVIEW of July 30 containing an editorial criticism on the conduct of this company in presuming to hold the owners of a lake vessel liable for damage to its natural gas pipe line, etc. When all the facts in the case are known we believe the MARINE REVIEW will acquit the company of any intention to make special claims to the bed of the river, or to antagonize the vessel interests, or make any other unreasonable claims beyond the rights to which it is justly entitled.

On the contrary, this company admits that unavoidable accidents may occur for which it could make no claim for damages. And it believes also that a great majority of the members of the Lake Carriers' Association have respected its rights and avoided the locality of its pipe line, which the company very much appreciates. It also acknowledges its obligations to the association for the courtesies mentioned in your article.

Did this company believe that the damage in question resulted from unavoidable causes the necessity for your criticism would never have arisen.

We feel sure, however, that the proofs in the possession of the company will show a different state of affairs, and we also feel sure that neither the MARINE REVIEW, or the "Lake Carriers' Association" will attempt to do either injustice or injury to the company, or its property, because it attempts to protect itself from special acts of vandalism.

This company does not desire to try its lawsuits in the newspapers, and is somewhat surprised that a paper of the standing of the MARINE REVIEW should decide in advance adversely to it. It recognizes to the fullest extent all the rights of navigation, but the rights of navigation do not accord to vessel owners permission to engage in wanton destruction of property.

Very respectfully,

F. P. BYRNE,

Vice-President of the Interior Construction and Improvement Co.  
Detroit, Mich., August 5, 1896.



### Thirty Vessels Fined \$8,400.

THE ALLEGED OFFENSE IS IGNORING OR DISOBEYING THE NEW SOO RIVER REGULATIONS.

While it is known that a number of vessels have been fined for ignoring or disobeying the new Soo river regulations as to speed, etc., it will be a surprise to learn that thirty vessels have been given penalties of \$200, \$400, \$600, and in one case \$800, the total amounting to \$8,400. This has not caused as much anxiety among captains and owners as it might, because it is the general opinion that the fines, or a large portion of them will be remitted when the facts are brought forward in the case. This was true of the Sauber, but it is learned that the fines are of two classes—one that may be remitted at the discretion of the proper officers and the other is non-remittable. The City of Bangor's fine of \$600 is of the latter class. The alleged offense in this case consisted of passing a vessel (which was going the opposite direction, however) running at too high speed, and paying no attention to the launch of the revenue cutter. She was fined \$200 on each count. So it is easy to run up a fine of \$600 in one offense and the first one at that.

Following is a complete list of vessels fined up to date, with the amount of the fine: Business \$200, North, Land \$400, Manitoba \$200, Rosedale \$200, John Owen \$200, Majestic \$200, Olympia \$400, Northern Wave \$200, Harvey H. Brown \$200, Nyanza \$200, Marina \$200, Colorado \$200, Eber Ward \$400, Maruba \$200, Waubun \$200, Monarch \$400, Thomas Maytham \$200, China \$200, Alberta \$200, Vega \$200, Zenith City \$200, Yakima \$200, Centurion \$400, Cadillac \$400, Sir Henry Bessemer \$200, United Empire \$200, Minnie M. \$800, City of Bangor \$600, Livingston \$400, Schuylkill \$200.

It will be noticed that there are five Canadian vessels included among the offenders. Whether these vessels will pay the amounts without quibbling will prove interesting. If not it will become an international question.

A generous application or a careless reading of the rules have led captains to understand generally that the seven-mile limit was to be observed only when passing other vessels. The rule is very explicit on this and it is reprinted herewith:

"No vessel ascending or descending St. Mary's river shall proceed at a greater speed than seven miles an hour between the following named points, to-wit: Between the turning channel buoy in the northern part of Mud lake and the northern float lights of the 20-foot channel of Hay lake, leading from Neebish channel, and between the crib light at the southern entrance of the upper 20-foot and the Little Rapid channels, and the government pier at Sault Ste. Marie, and between the western end of the St. Mary's Falls canal piers and Big point."

So little attention has been paid to this rule that only a few of the captains have figured out the distances between turning points through the river, and probably none have figured the time that should be consumed in covering the distance between the points and keep within the 7-mile rule. The following table including this information will no doubt be of service to captains:

	*Distance between points.	Time required at 7 miles per hour. Minutes.
1. From the Mud Lake turning buoy, to abreast of the lower Sailors' Encampment range light.....	5,120 yds.	24.93
2. From the last named point to lower end of Ross dock	800 "	3.89
3. From the last named point to turning point abreast of buoy No. 7.....	1,275 "	6.2
4. From the last named point to turning point abreast of buoy No. 6.....	1,730 "	8.42
5. From the last named point to turning point abreast of buoy No. 1.....	5,675 "	27.63
6. From the last named point to turning point abreast of the can buoy above the dyke.....	5,640 "	27.46
7. From the last named point to northern float lights of the 20-foot channel of Hay Lake.....	4,800 "	23.37
Total.....	25,040	121.90
1. From crib light at the southern entrance of the upper 20-foot and Little Rapids channels to abreast of turning buoy No. 34.....	2,500 yds.	12.17
2. From last named point to "on" Bayfield rock range	5,550 "	27.03
3. From last named point to the east end of the government pier at Sault Ste. Marie.....	2,700 "	13.15
Total.....	10,750	52.35
From the west end of the canal piers to Big point.....	3,700 "	18.02
Grand Total.....	39,490	192.3

\*Distances were furnished by courtesy of Ensign Cole, Cleveland hydrographic office.

Arrangements with the officials of the Treasury Department have been made to hold the fines in abeyance until Sept. 1, when Mr. Goulder will visit Washington and take up the question of enforcing the fines. In an interview on the matter Mr. Goulder is quoted as follows:

"Vessel owners are generally satisfied with the rules," he said, "and have instructed their masters to observe them strictly. The greater part of the fines which have been imposed so far have been for infractions of the limitation of speed. There is a tacit undersanding among masters that the speed rules are not to be strictly observed in the case of one vessel coming through with no other in close proximity, and Capt. Davis is supposed to exercise his discretion in the enforcement of the speed rules. I have an arrangement with the treasury department whereby a decision in all these cases is to be held open for a time, and I shall go to Washington about the first of September, when all the cases will be reviewed and settled.

"It was the understanding at the opening of the season that the rules were to be tried for one season, and then discussed by the authorities and those interested, and any change necessary attended to. I think, however, from what I have been told by the vessel owners with whom I have talked, that the rules as they now stand are generally satisfactory. There are bound to be some who do not like them, but that would be true in any case, and I think that as many are satisfied now as well can be."

At the time the rules were published a copy of the act prescribing the penalty, was not printed. Below will be found sections 2 and 3 of it, which apply to fines and forfeiture of the vessel.

"Sec. 2. That all officers of the revenue cutter service who are directed to enforce the regulations prescribed by the above rules are hereby empowered and directed, in case of necessity, or when a proper notice has been disregarded, to use the force at their command to remove from channels or stop any vessel found violating the prescribed rules.

"Sec. 3. That in the event of the violation of any such regulations or rules of the Secretary of the Treasury by the owners, masters, or person in charge of such vessel, such owners, master, or person in charge shall be liable to a penalty of two hundred dollars, and the vessel, its tackle, apparel, furniture, and cargo, at any time used or employed in violation of such regulations, shall be forfeited to the United States; *Provided*, That the Secretary of the Treasury may remit said fine or release said vessel on such terms as he may prescribe."

### Obstruction in South Passage, Lake Erie.

Some conflicting reports have been published in the late papers regarding the obstruction found by Assistant United States Engineer Blunt in the south passage, Lake Erie. On October 16, 1895, the steamer John Oades struck an obstruction in the south passage, between South Bass and Kelley islands, and sunk. Several years ago the steamer Hesper struck in the same vicinity, and in the winter of 1894-95 the American Eagle also struck, drawing 12 feet. Upon the report of the captain of the Oades, Col. Smith of the corps of engineers, United States army, was directed by the war department to make a search for these obstructions. Assistant-Engineer Wm. T. Blunt, with the steamer Swansea, was directed to conduct the search, and as soon as other matters would allow proceeded to do so. On the second day of the search, a large pile of rock was found, which on careful examination proved to have a general depth of 15 feet over it, with several places of only 13 feet; and two boulders with but 11 feet over their tops. These boulders stand with verticle sides in 19 feet of water and are exceedingly dangerous.

The shoal is something of the shape of a dumb-bell, 350 feet long and 150 feet wide. It is located almost exactly on the course from Ballast island to Lakeside, due west from Carpenter point on Kelley island, one and five-eighth miles. It is also directly on the course from abreast of Starve island buoy to the Kelley island docks. Bearings are as follows: Marblehead light-house, S. E. by S.  $\frac{1}{2}$  S.; East edge of Ballast island, N.  $\frac{3}{4}$  W.; Lakeside dock S. by E.  $\frac{1}{2}$  E.; South point of South Bass island, N. W. by W.  $\frac{1}{2}$  W.; Black can No. 1, Scott point shoal, W.  $\frac{1}{2}$  N.,  $2\frac{1}{2}$  miles; Carpenter point, E.  $\frac{3}{4}$  N.  $1\frac{1}{2}$  miles.

This is without doubt the rock struck by the American Eagle, but as the captain of the Oades feels quite sure that he was not so far north and east, a further systematic search is being made. The shoal already found is now marked by a spar buoy with red and black horizontal stripes.





DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

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The books of the United States treasury department on June 30, 1895, contained the names of the 3,342 vessels, of 1,241,459.14 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1895, was 360 and their aggregate gross tonnage 643,260.40; the number of vessels of this class owned in all other parts of the country on the same date was 309 and their tonnage 652,598.72, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1895, was as follows:

	Number.	Gross Tonnage.
Steam vessels.....	1,755	857,735.13
Sailing vessels.....	1,100	300,642.10
Unrigged.....	487	83,081.91
Total.....	3,342	1,241,459.14

The gross registered tonnage of the vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30, 1891.....	204	111,856.45
" " " 1892.....	169	45,968.98
" " " 1893.....	175	99,271.24
" " " 1894.....	106	41,984.61
" " " 1895.....	93	36,352.70
Total.....	347	335,433.98

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1895*	1894	1893	1895	1894	1893
No. vessel passages.....	17,956	14,491	11,008	3,434	3,352	3,341
Tonnage, net registered.....	16,806,781	13,110,366	9,849,754	8,448,383	8,039,175	7,659,068
Days of navigation.....	231	234	219	365	365	365

\* 1895 figures include traffic of Canadian canal at Sault Ste. Marie, which was about 1/2 per cent. of the whole, but largely in American vessels.

WHATEVER may be said of the steamboat inspection service it has certainly accomplished a commendable work in reducing steamboat accidents to the minimum, especially those resulting from overloading excursion steamers. Apparently the law in this regard is all that can be desired, and if the number of passengers allowed in the boat's papers is not exceeded, perfect safety is assured. This is not true, however, of excursion steamers, and unless the law is amended to provide for the proper distribution of passengers on the different decks, it does not require an imaginative person to predict a disaster. In fact, several accidents of late years might be traced to this cause. A recent experience on a river passenger steamer will furnish the best test for the suggestion of the improvement of the laws in this respect. Unexpectedly a railroad connection dumped an excursion of some 300 passengers onto the steamer in question. The regular passengers and the excursion did not make up the total number of passengers allowed, although the limit was almost reached. The steamer was of sufficient stability to have accommodated the crowd if 90 per cent. of them had not crowded to the upper deck. This caused the boat to become cranky at the movement of the rudder, and at one time it gave decided lurches in either direction. The officers of the boat did their best to overcome this by rolling ballast barrels from one side to the other, and by very ingenuously directing the rays of the search light away from the heavy side causing the crowd to move and counterbalance. Of course, there was no danger of the boat turning over on the side, but the danger was that the boat would lurch to a degree that would throw the crowd against the slight railing, which would easily give away and let forty or fifty persons into the water. Relieved of this weight the steamer would regain its position. An accident involving this principle occurred several years ago at a launch in Saginaw bay. If the board of supervising inspectors will consider this matter and provide for a fair division of passengers on the upper and lower decks of excursion steamers, the possibility of such disaster will be obviated.

THE article in this issue of the REVIEW concerning the fining of a large number of vessels for not observing the Soo river regulations is not by any means a criticism of the law. These regulations were submitted to all the masters belonging to the Ship Masters' Association, and were passed upon as being satisfactory. They had the attention of the best authorities on lake navigation, and it is not within the province of the REVIEW to set up an opinion as to its convenience or justice. Neither is the illustration any reflection on the officer who

has the responsibility of having the rules obeyed. He has to use his judgment, and if that is in error the rules provide for an appeal to him. The illustration will merely serve to remind the captains who have not been fined that there is a handicap on running the Soo river. Those who have been fined will need no reminder.

IT is stated that the manager of the Japanese Mail Steamship Co. has signed a contract with the Great Northern Railway Co. for establishing a line of steamers between Tokio and Seattle, Wash. A monthly service of a steamer each way will commence at once. It remains to be seen if this is another step in making the Great Northern Railway and the Northern Steamship Company links in a transportation system to girdle the earth, like the Canadian Pacific Railway, or whether Mr. Hill has gauged the possibilities of new Japan, and is getting in position to bring its products to an American market. In either case it ought to lead to the enlargement of the Northern company's lake fleet.

IN AN article on ship building of the United States the jubilee edition of the Scientific American gives the figures at the head of the REVIEW's editorial column—3,342 vessels with a total tonnage of 1,241,459 tons, two-thirds being steam vessels—as showing the progress of lake ship building. It adds that the commissioner of navigation estimates the carrying capacity of this fleet at 2,666,261 tons. If this is correct it places the merchant fleet of the lakes second only to that of England and Germany and above that of France. It is thus suggested that a canal from the lakes to the seaboard would assist in solving the problem of replenishing American shipping.

### Coast and Lake Wages.

The following comparison of wages paid on the Red D Line of steamers from New York to Venezuela shows that employes on lake vessels are fairly paid. The highest lake wages are given, as there are few lake steamers that would class with the coast steamers, the latter carrying freight and passengers. The Red D line wages are taken from an English exchange.

	Red D Line per month,	Lakes. per month.
Captain.....	\$ 200	\$150 00 to \$175 00
First mate.....	80	70 00
Second mate.....	60	50 00
Engineer.....	125	112 50
First assistant engineer.....	80	79 00
Firemen.....	40	34 00
Quartermasters.....	30	34 00
Sailors.....	25	34 00

### Bell Time on Shipboard.

The nautical day begins at noon and is divided into "watches" of four hours each, time being kept by bells striking every half-hour.

O'CLOCK.

1 Bell.....	12.30	4.30	8.30	A. M. or P. M.
2 Bells.....	1.	5.	9.	A. M. or P. M.
3 ".....	1.30	5.30	9.30	A. M. or P. M.
4 ".....	2.	6.	10.	A. M. or P. M.
5 ".....	2.30	6.30	10.30	A. M. or P. M.
6 ".....	3.	7.	11.	A. M. or P. M.
7 ".....	3.30	7.30	11.30	A. M. or P. M.
8 ".....	4. { A. M. P. M.	8. { A. M. P. M.	12.	{ NOON. MIDNIGHT.

### The Watch as a Compass.

The points of the compass may be determined with the aid of an ordinary watch. It is simply necessary to bring the watch in a position so that the hour hand is directed toward the sun. The south then lies exactly midway between whatever hour it may happen to be and the numeral XII. on the dial. Let us suppose for instance that it is four o'clock, and that the time piece is held in the position indicated. The direction of the numeral II. will then be the exact south. If it be eight o'clock, the numeral X. will indicate the exact southerly point.

Special train excursion to Niagara Falls via the popular Nickel Plate road, Saturday, August 8. Train leaves Broadway depot at 10 p. m. \$3.50 for the round trip. Tickets good returning until August 10. 221-Aug. 8.

Subscribers will avoid danger of mistakes by giving the old as well as the new address when a change is desired.



### How to Lay Down a Ship.

"The drawing-boards are of very large size, as the designs are got out to a scale of  $\frac{1}{4}$  in. to a foot; and as many of the vessels are from 500 ft. to 600 ft. long, the drawings are of great length. The boards are stiffened by a longitudinal rib at the back, and the T squares are used across the boards instead of longitudinally. A rough sketch design is first got out, this is then sent into the model room, where a half model of the hull is then made. This is fixed to a board and sent back into the drawing office, and there a draughtsman sets off the positions of the frames upon the back board, and then in the model shop these lines are scribed vertically on the model. The whole of the lines representing deck and plating are then marked off upon the wooden model, and the draughtsman proceeds to set off the plates in such a way as to break joint as much as possible with others in adjoining strakes. All the models are made to a scale of  $\frac{1}{4}$  in. to 1 ft. Designs are then prepared, showing how the various strakes run, and each strake is lettered and marked 'in' or 'out,' as the case may be. The whole of the hull is built of mild steel, and the dimensions for thickness are always given in twentieths of an inch, whereas for wrought iron dimensions are given in sixteenths. In examining a set of drawings which were in hand, the garboard strake plates were figured 21-20, the sheer strake 21-20, and the bilge 16-20 to 17-20, while the frames were 7 in. by  $3\frac{1}{2}$  in. by 11-20 in.; the longer plates were about 28 ft. The whole of the original drawings are stretched and glued to the drawing-boards, and the shop-tracings are made on cloth and colored and fully dimensioned.

"The mould loft is one of the most important parts of the works. Here the floor is well laid, and upon it are fixed immense boards specially made for each vessel. The drawings, prepared in the drawing office to a scale of  $\frac{1}{4}$  in. to a foot, are brought here, and the whole of the lines representing the curves of the frames and plates are laid down full size. At first the lines are merely chalked out with the aid of long pliable straight edges, and then these lines are cut into the wood itself by hand with a knife. Each of the various sweeps is figured so as to correspond with the drawing, these processes being known as 'screeving.' The floor is thus covered with a maze of curves and straight lines, and when complete the whole floor is taken up and carried into the plating shed, where it is pieced together again. We now reach the platers' shop, and here will be seen the screeving boards carefully laid down on the floor. Upon the surface of the boards are screwed pieces of half-round iron, so that the surface may not be burnt when hot templates are tried on. A template consisting of bar iron about 2 in. wide by  $\frac{1}{2}$  in. thick is now bent to fit each one of the curves on the screeve board, and these templates are fixed upon the large face plates and the frame channels are bent to fit them. A gang of special smiths is kept for this work, the holes in the frames having all been drilled before they go into the furnace. Long channel irons are heated in special furnaces with six fires down the sides, so as to obtain an equable heat over the whole length of the frames."—The Engineer, London.

### Lake Navigation Forty Years Ago.

J. M. McGregor of Detroit has furnished an exchange with the following interesting reminiscences of lake business in its early days:

"In the village of Algonac, on the St. Clair river, there was a coaling station for steamers, kept by St. Clair & Brooks, as early as 1847. Such steamers as the Ben Franklin, Missouri, Louisiana, Nile, Niagara, Illinois, Garden City, C. P. Griffith and Empire coaled there at one time or another. These were all side-wheel steamers.

"The growth of the grain trade from the west called into being a fleet of sailing vessels. The bark E. B. Morgan was full square-rigged on both her fore and mainmasts and carried a crew of twelve men, beside a master, two mates, a cook and a royal boy. She could not get over the St. Clair flats with a cargo of 13,000 bushels of wheat without lightering nearly 2,000 bushels. The bark Utica was of the same rig, with the same complement of officers and crew. Her full cargo was about 12,000 bushels of wheat. The brig Oleander was also square-rigged on both masts. There were the brigantines Philadelphia, Montezuma and Rio Grande, the topgallant schooners Saitillo, Rialto, etc., with crews varying from eight to ten men forward, and carrying from 8,000 to 11,000 bushels of wheat.

"With a cargo carried each way these vessels made from seven to eight trips in a season. The north channel of the St. Clair river was then the only navigable one for deep draft boats, and the depth of water was 100 feet. An ox team was used to tow the grain vessels out

of the St. Clair rapids. My first recollection of a tug boat was the side-wheeled Romeo. A little later came the United, the Telegraph and the Chataqua, side-wheelers. We had no screw tugs in those days. There was no night navigation over the St. Clair river flats. Vessels sailed down as far as Algonac and came to anchor and awaited daylight. Vessels also sailed up the Detroit river and through Lake St. Clair to Point Huron, and there awaited daylight. There was a lighthouse on Point Huron called Belvedere light, which was also the name of a French settlement on Point Huron, at the mouth of the Clinton river. This lighthouse was abandoned as soon as the first improvements made in the south channel were completed in 1857. There was no regular system of towing vessels through the rivers then, consequently they often occupied a week in sailing from Lake Erie to Lake Huron and 'vice versa.' There were very few lighthouses then, and vessels did not navigate the south channel of the Straits of Mackinac, but passed to the northward of Bois Blanc island and between Round and Mackinac islands. The lighthouse on the north side of Bois Blanc island and the lightship at Waugoshance were the only lights between Presque Isle harbor and South Manitou island. Mackinac island was one known anchorage considered safe in all winds and St. Helena island was another, but there were no lighthouses upon either of them."

### In General.

Andrew Cameron, diver, at work on Loch Treig, Scotland, dived to a depth of 200 feet recently. This, it is said, is the greatest depth ever reached by submarine diving. Up till this the record dive was that at Brussels, where a diver named Valmont reached the depth of 160 feet.

In a communication to the Engineer, a lake correspondent says that only 22 and 24 of the North West's 28 Belleville boilers are necessary to furnish sufficient steam to make schedule time of 19 miles per hour. The correspondent estimates that these steamers are burning 700 tons of coal per round trip, which he claims is 100 tons less than last year. This is very doubtful as the amount of fuel used last year was said to be satisfactory, as was the quality of it.

Experiments show that a light of one candle power is plainly visible at one mile, and one of three candle power at two miles. A 10 candle power light was seen with a binocular at four miles, one of 29 at five miles, though faintly, and one of 33 candles at the same distance without difficulty. On an exceptionally clear night a white light of 3.2 candle power can be distinguished at three miles, one of 5.6 at four, and one of 1.2 at five miles.

The management of the Fall River Line is ever on the alert to add features that will secure comfort or convenience to their passengers. Their latest innovation is to have a corps of messenger boys meet their boats on arrival at New York. They will escort strangers, ladies and children to any desired place, carry parcels, etc. Their system of free cots for the poorer class of passengers is very commendable. Stateroom rates are so reasonable that a whole room is secured for \$1.50 and upwards, according to location.

If lake engineers had to furnish their own bed, bedding, linen, soap and matches it would be a just cause for a prolonged and righteous howl of indignation. But according to the following, engineers of English tramp steamers accept it as a matter of course: "In the large lines sailing from such ports as London, Liverpool, and Southampton, bedding, bed and other linen, soap, and matches are provided by the companies, but in most of the tramps or 'Geordies,' hailing from the Northeast Coast, such matters are left to the engineer to provide. As regards bedding, the humble straw bed, or 'donkey breakfast' as it is facetiously called, used by the firemen and sailors is as healthy a mattress as can be used, although rather hard and prickly to any one accustomed to sleep on something less coarse."

Following is a description of the Ramapo, the new Union line steamer, launched from the Union Dry Dock Company's yard: Her main hold is divided by bulkheads into nine compartments. Her water bottom is fifty-four inches deep, and the extreme length over all 340 feet, molded length, 336 feet; length on keel, 319 feet; depth, 27 feet three inches; beam, 44 feet. It is expected that this boat will carry 4,000 tons on sixteen feet of water, and at this draft she has a displacement of 5,480 tons, it is expected she will have no difficulty in running fourteen miles an hour. The work of construction was begun last September, and has given employment almost constantly to 500 men.



**Miscellaneous Mention.**

The City of Toledo ran from Detroit to Port Huron, making seventeen landings, in 4 hours and 53 minutes.

Captain Scott of Toledo is promoting a pipe line scheme for independent oil refiners. It will include the building of an oil steambarge if he is successful. The prospectus involves a capital of \$100,000, none of which seems to be subscribed.

Capt. Thomas Harbottle of the steambarge Havana, died on board his vessel at Houghton, Sunday, of appendicitis. Capt. Harbottle was a native of Hamilton, Ont., and was 39 years old. He was a member of the Shipmasters' Association and of the Masonic order.

The Shenango No. 1 carried 18 cars of ore and 10 of coal to Port Dover on a recent trip. The Ann Arbor No. 1 has been changed so she can carry 25,000 bushels of grain, the machinery for the bow propeller having been taken out. Elevators are building at Green Bay, Frankfort and Kewaunee, to care for the grain.

Early in the '70s vessels carried coal to Chicago for nothing, but they did so because they wanted ballast. They had been carrying sand for the same purpose, but they had to pay for the unloading of it, whereas, if they carried a load of coal for nothing it would be unloaded free.

Last October the tug Gladiator was burned at Sault Ste. Marie, and in order to save a portion of her hull she was sunk. She

was raised last May and taken to Detroit to be rebuilt, and the work is about completed. The repairs cost about \$8,000 and the boat is practically new.

The steamer I. Watson Stephenson was fined \$500 for carrying passengers without a license. The passengers were the owner's family. Officers of the revenue cutter Calumet saw the party aboard in Chicago, and ordered the captain before the collector. The owner paid the fine and appealed.

**Stocks of Grain at Lake Ports.**

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principle points of accumulation on the lakes on Aug. 1, 1896:

	Wheat, bushels.	Corn, bushels.
Chicago.....	13,767,000	5,514,000
Duluth.....	6,801,000	14,000
Milwaukee.....	379,000	1,000
Detroit.....	268,000	7,000
Toledo.....	562,000	50,000
Buffalo.....	1,438,000	287,000
<b>Total.....</b>	<b>23,215,000</b>	<b>5,872,000</b>

As compared with a week ago, the above figures show at the several points named a decrease of 297,000 bushels of wheat, and an increase of 703,000 bushels of corn.

NORTH  
WEST

FROM  
**CLEVELAND to BUFFALO and Eastern Resorts**  
MONDAYS and THURSDAYS, 12 o'clock night.

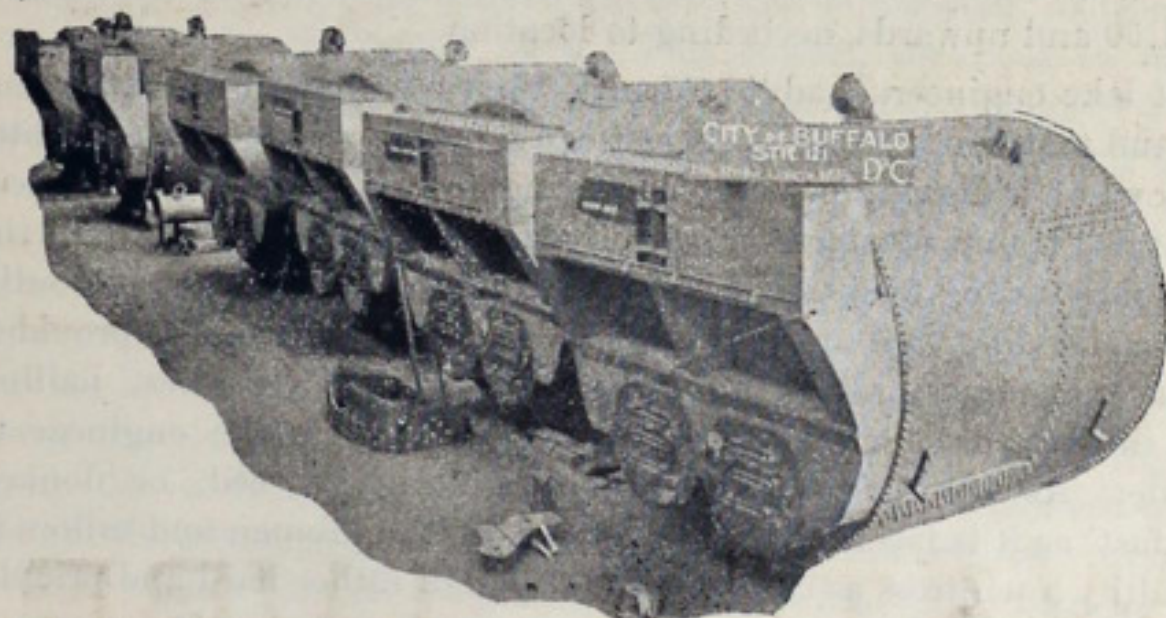
TO  
**Detroit, Mackinac, Soo, Duluth and West**  
WEDNESDAYS and SATURDAYS, 7:30 A.M.

D. J. COLLVER, 239 Superior St. | NEW DOCK, Foot of Water St. | C. H. TUCKER, 23 River St.

NORTH  
LAND

# Air is Cheap—Cheaper than Dirt!

## FUEL IS DEAR—VERY DEAR! USE AIR AND SAVE FUEL!



Six Boilers with Howden Hot Draft appliances now in Side-Wheel Steamer City of Buffalo. Dimensions of each boiler—12 ft. 6 in. diameter by 12 ft. length.

**E**CONOMY in operating expenses on Lake Ships must come from reduced coal bills. No great saving can be made in labor cost, and provisions are already low. But fuel bills can be lowered and cheap coal used to advantage by adopting Modern Methods of making steam at low cost.

No manufacturer of pig iron would to-day think of running his furnace without a hot blast. Competition would not permit it. This same competition demands advanced practice in the operation of ships. The same principle is applied in the

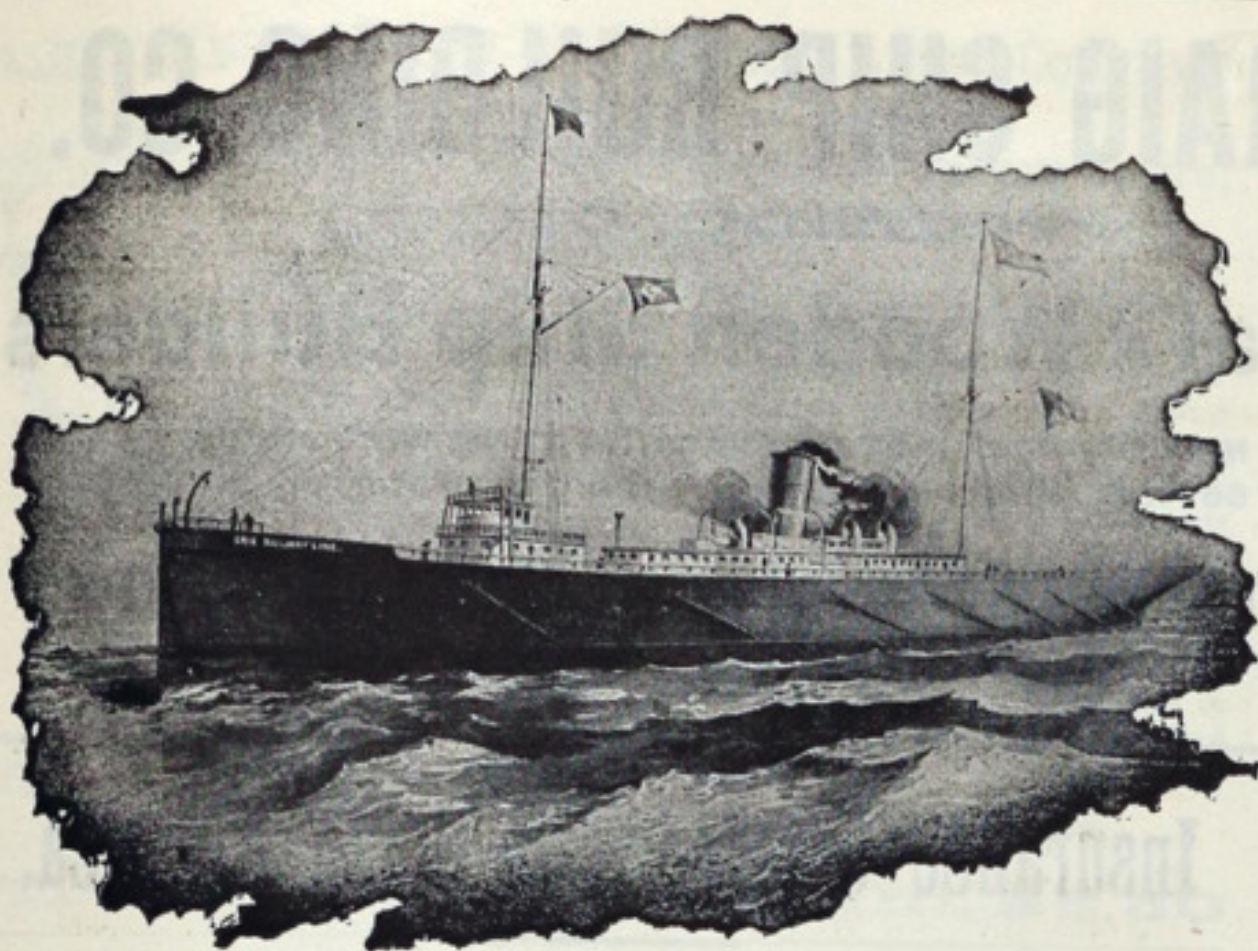
## HOWDEN HOT DRAFT

Now in use on Lake Steamers aggregating over 40,000 Horse Power.  
CAN BE APPLIED TO OLD SHIPS AS WELL AS NEW ONES.

No complicated machinery. Cool engine rooms and cool fire holds. Estimates readily furnished for application of this draft to any steamer

# DRY DOCK ENGINE WORKS, DETROIT, MICH.





## Rapid Fueling Docks, DETROIT RIVER.

JAMES GRAHAM, Foot Twenty-first St., Detroit,  
Below Routes of Passenger and Car  
Ferry Lines.

Pockets and Chutes arranged for different types of vessels.

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Large Supplies and every effort to give dispatch, day and night. Wide stretch of river for tows, and plenty of water at dock at all times.



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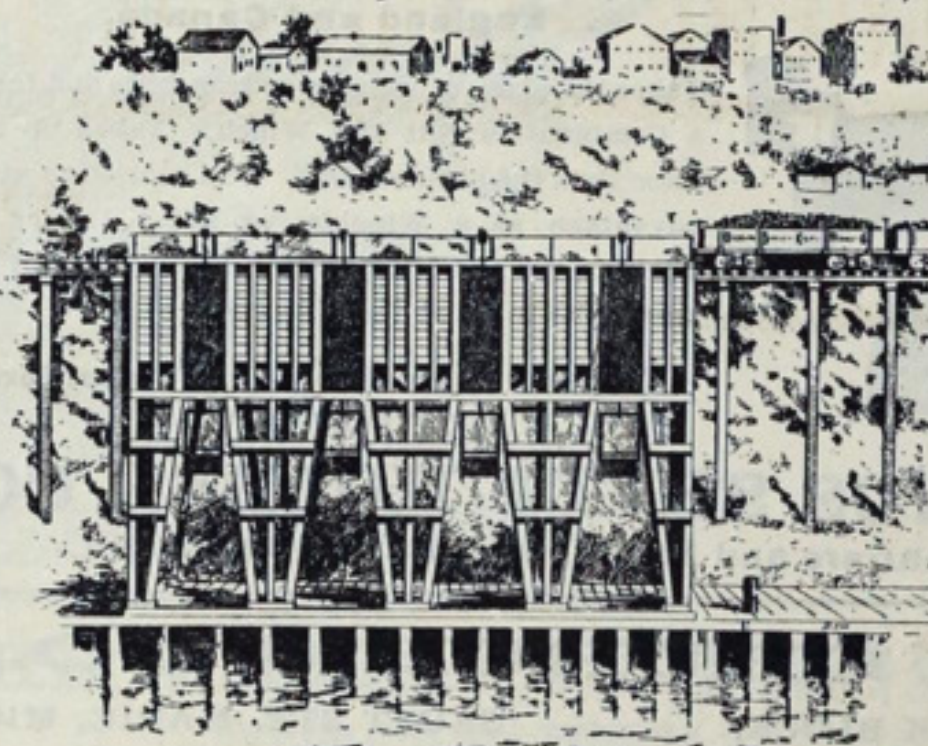
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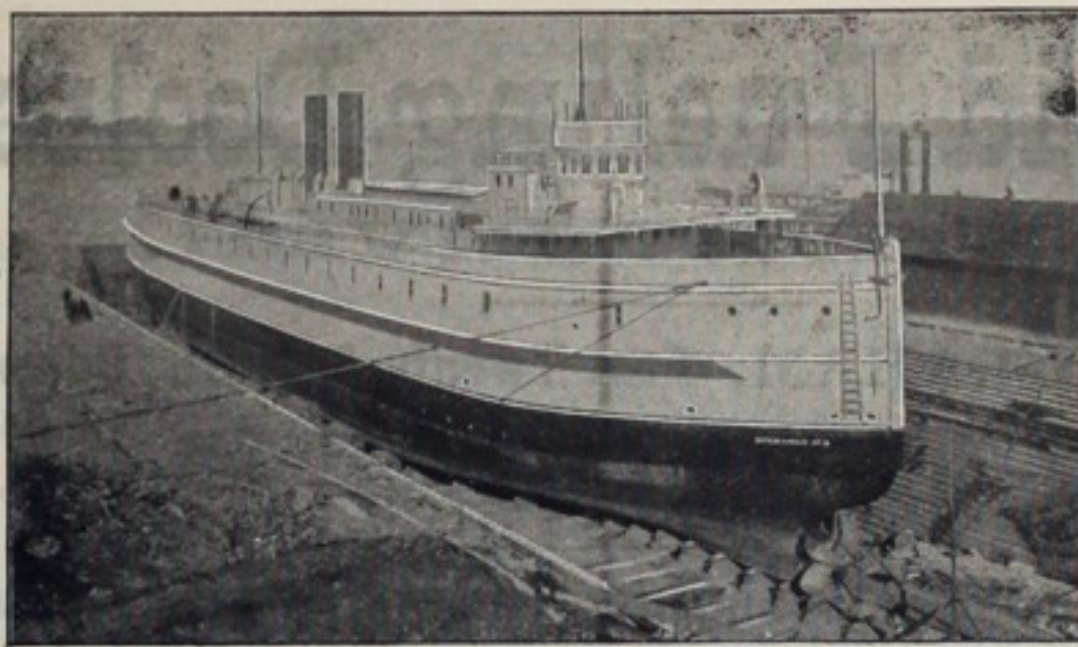
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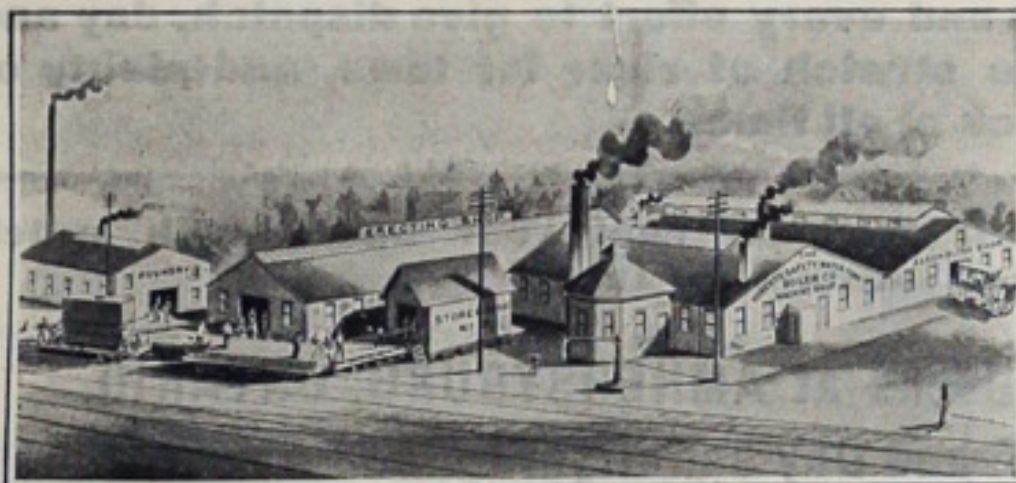
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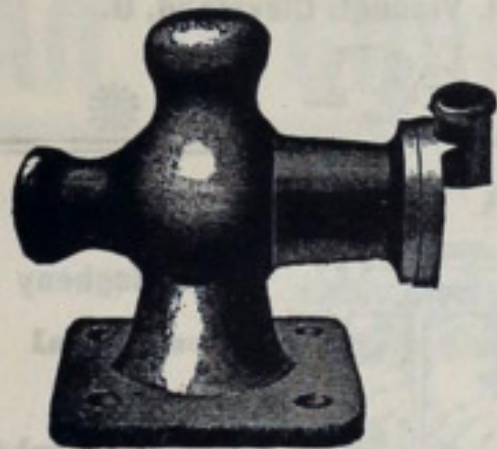
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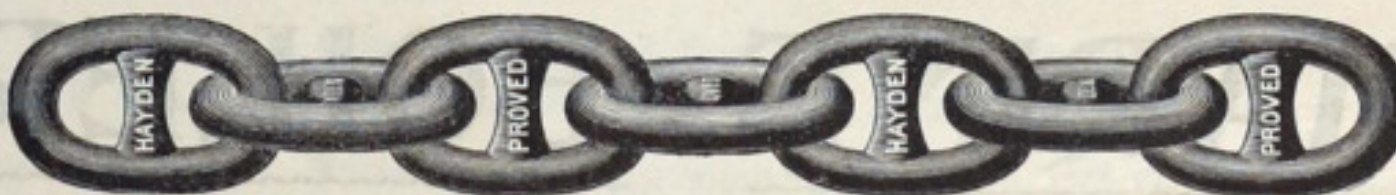
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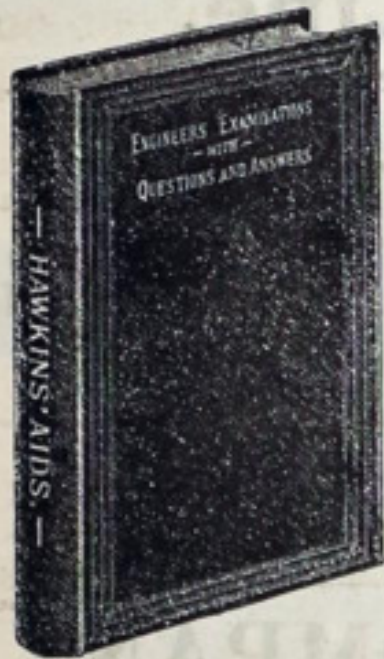
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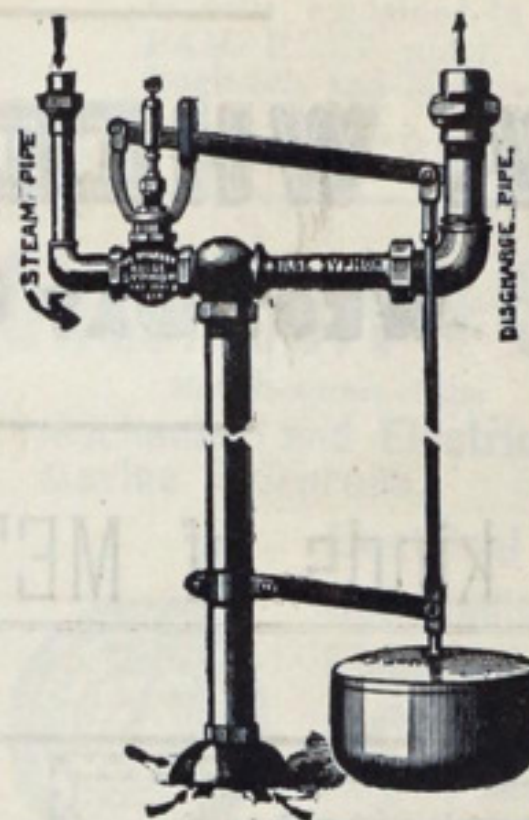
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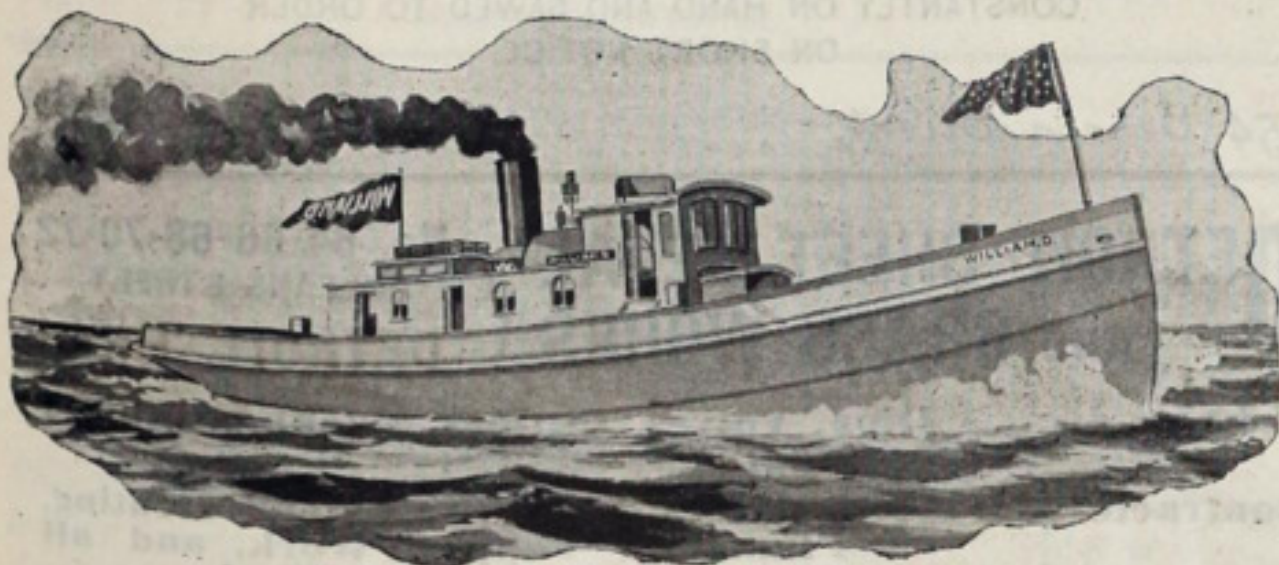
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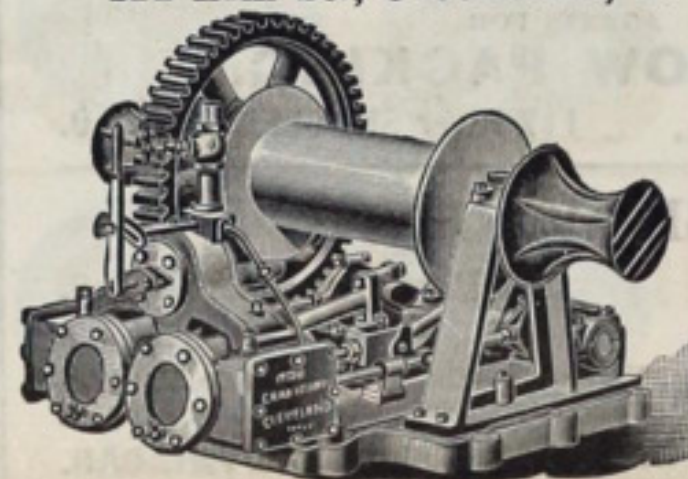
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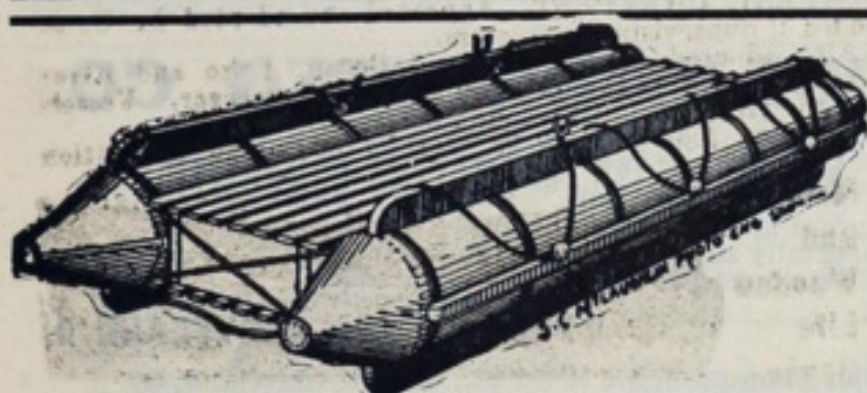
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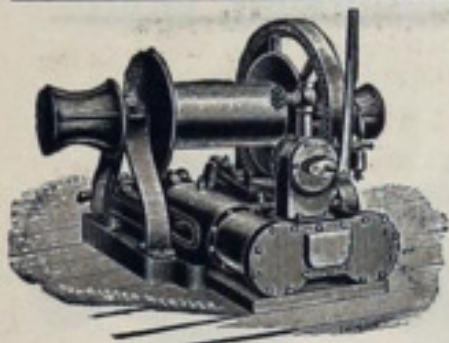
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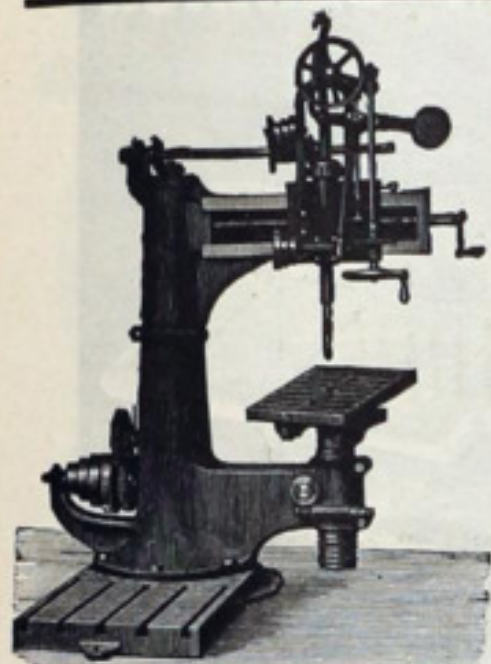
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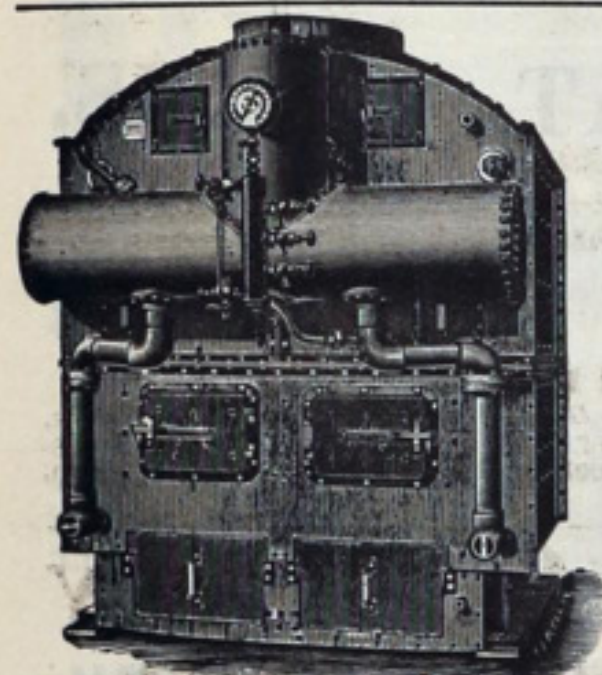
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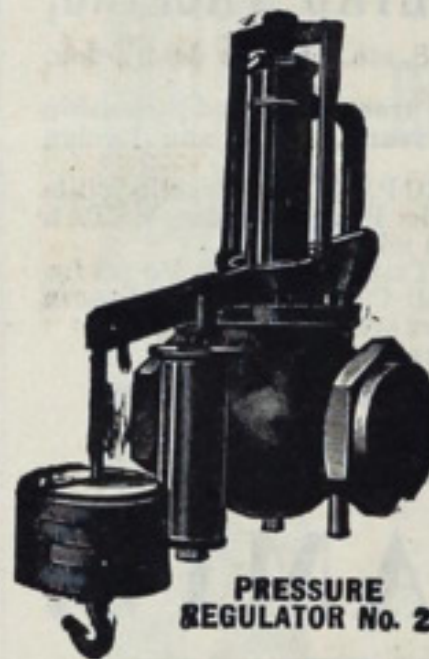
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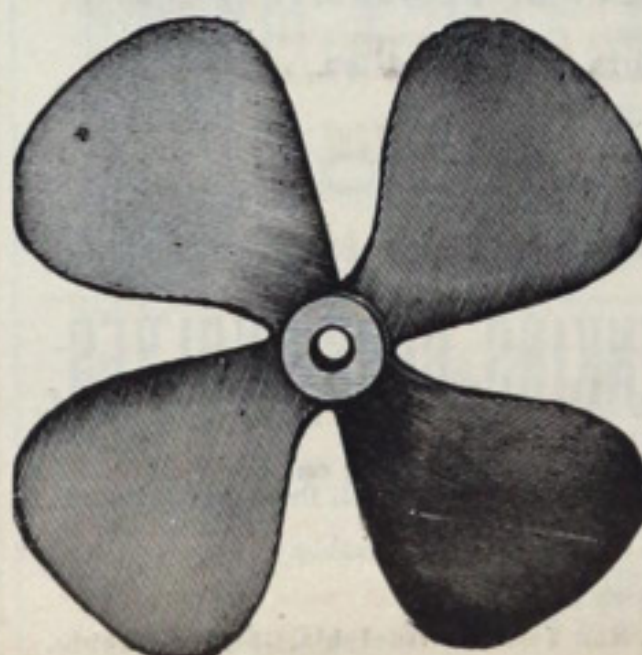
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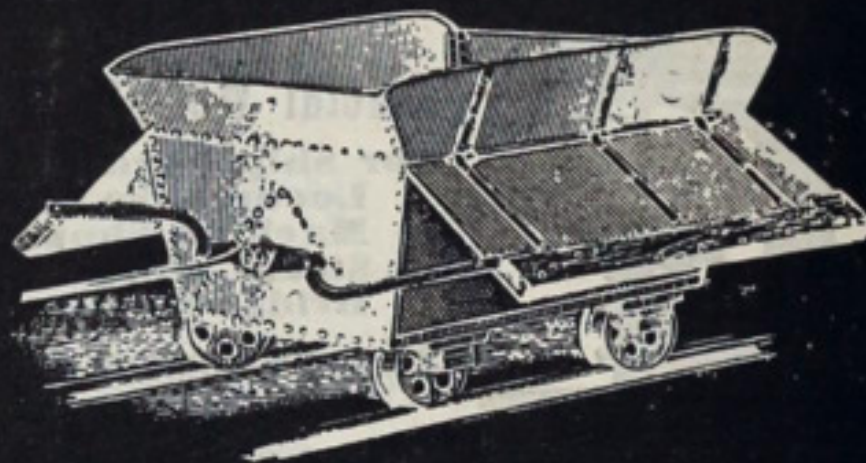
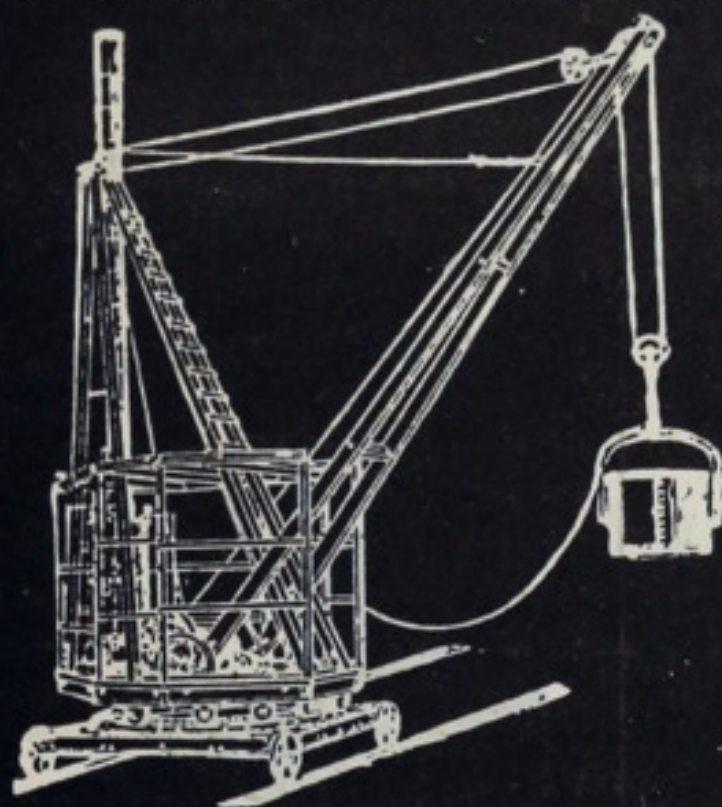
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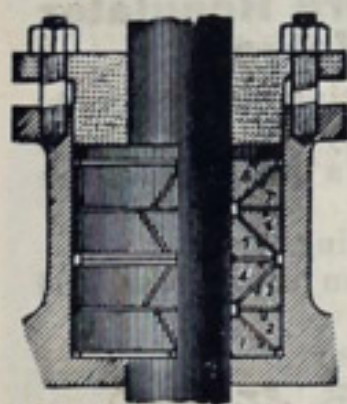
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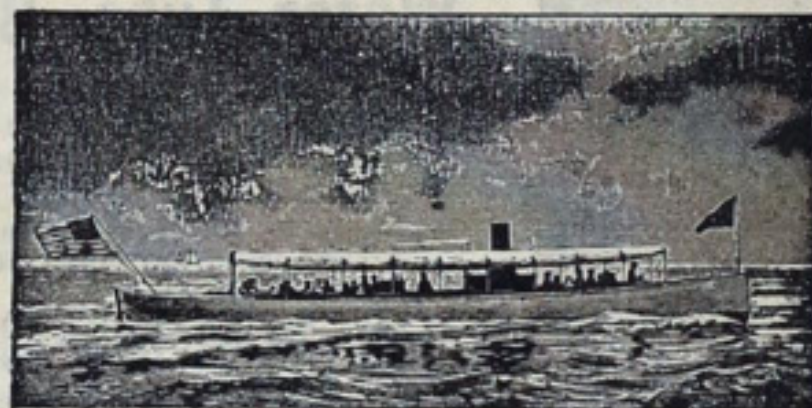
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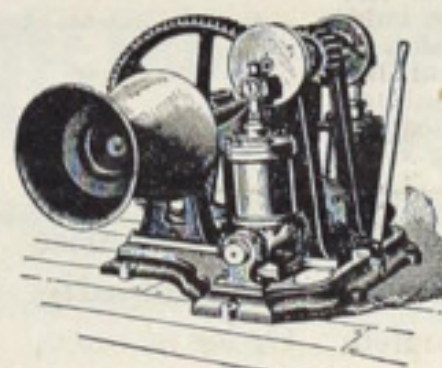
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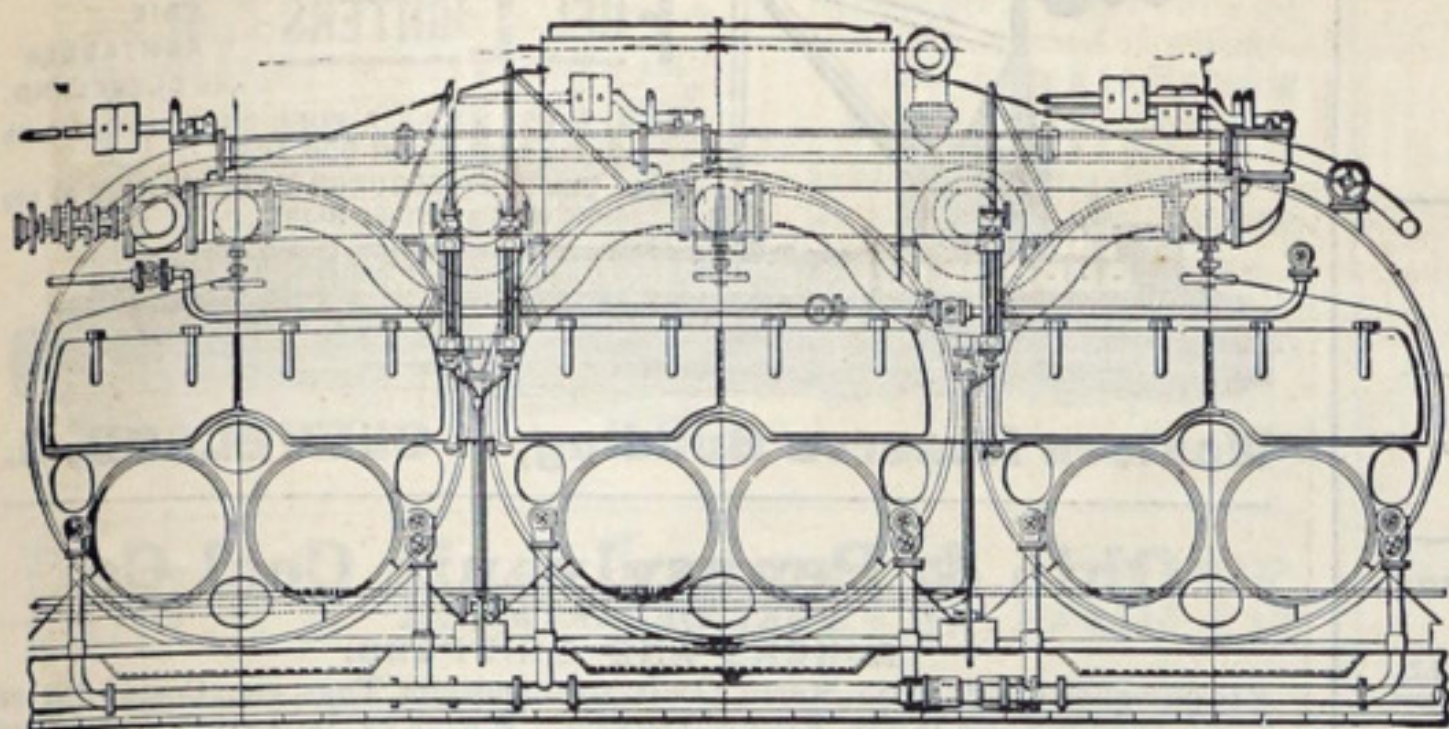
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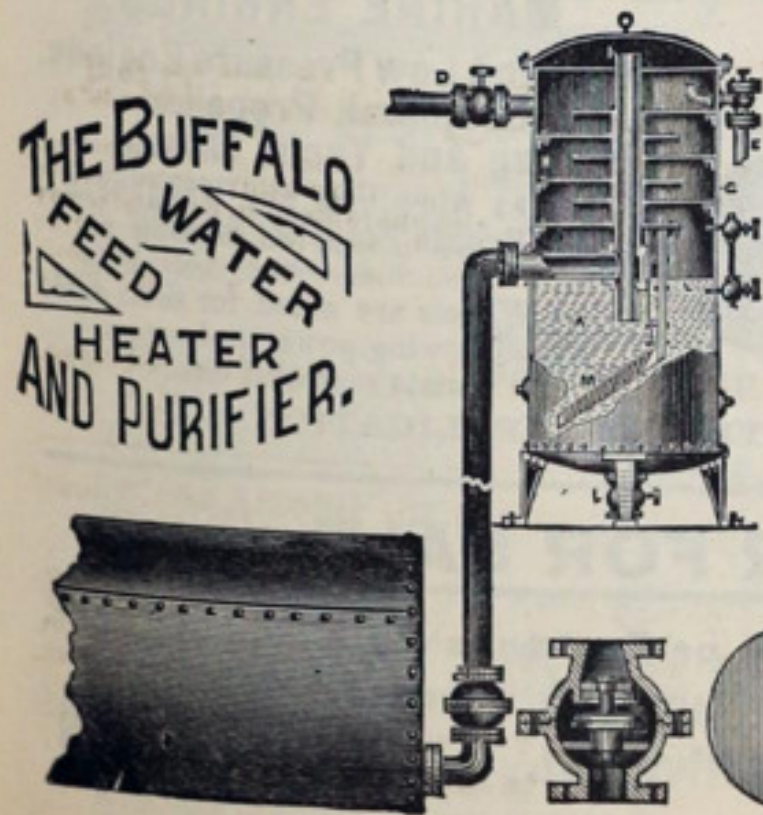
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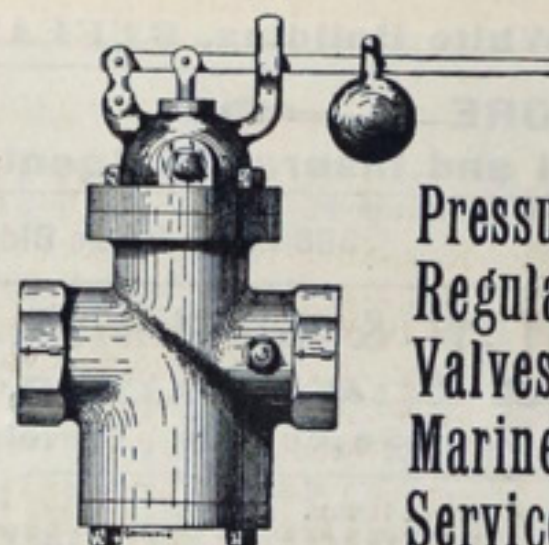
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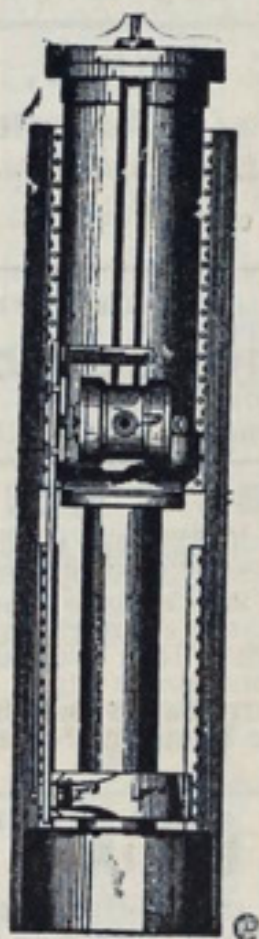
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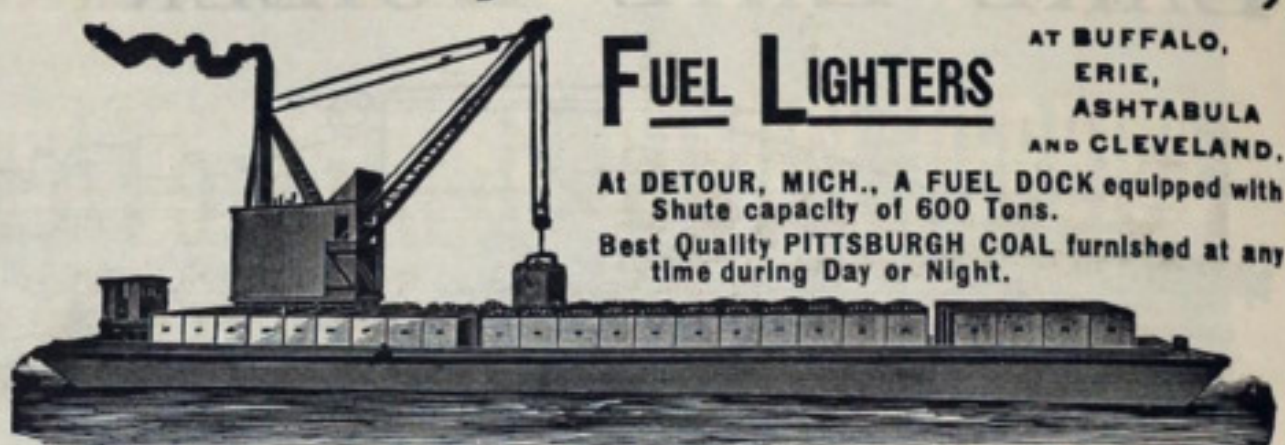
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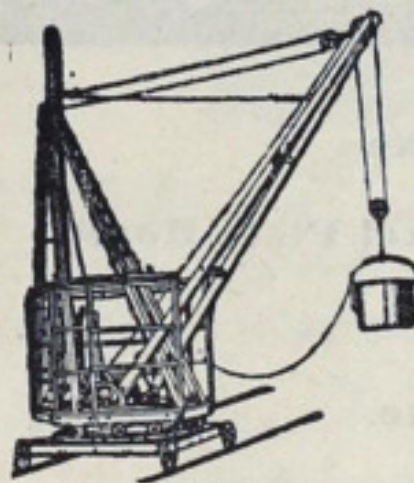
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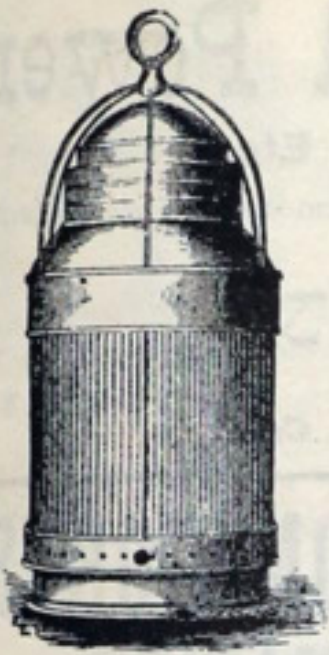
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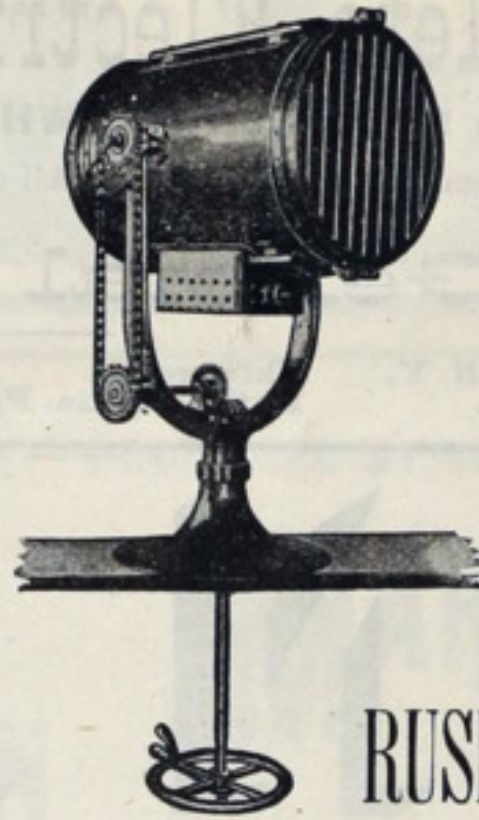
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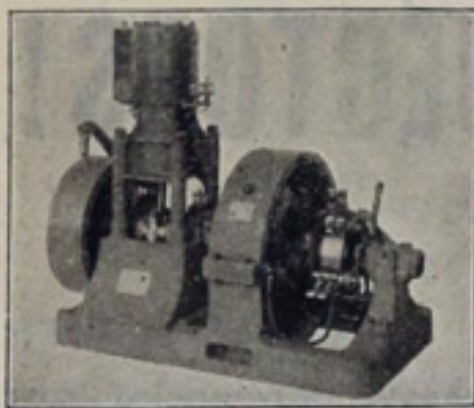


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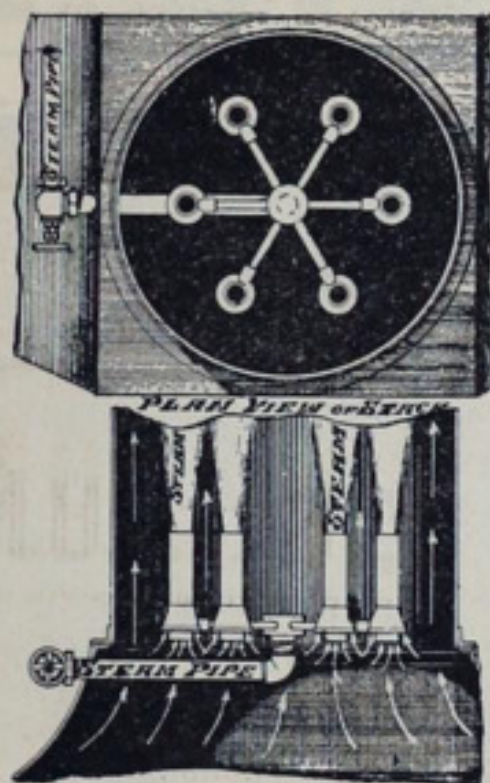
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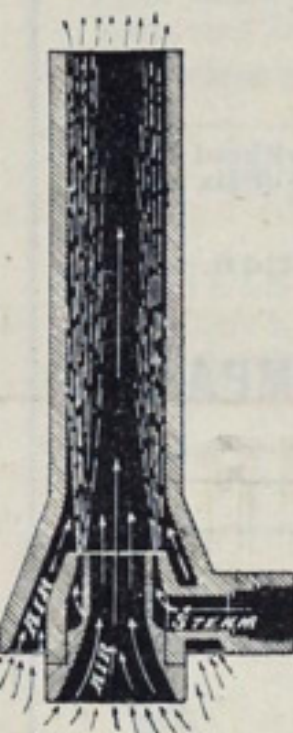
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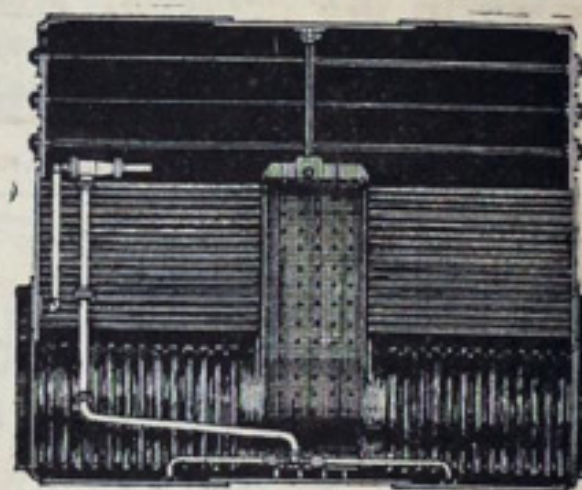
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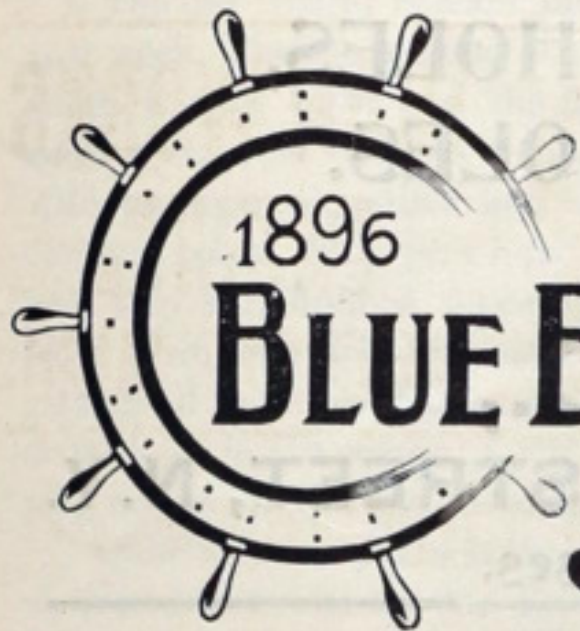
**The Detroit and Cleveland Steam Nav. Co.**

**UNITED STATES ENGINEER OFFICE,** 185 Euclid Avenue, Cleveland, O., July 1, 1896. Sealed proposals for constructing a stone and brush jetty from Cedar Point at Sandusky Harbor, Ohio, will be received here until 2 o'clock, p. m. standard time, August 7, 1896, and then publicly opened. Information furnished on application. **JARED A. SMITH,** Lieut. Col. Engrs. Aug. 6.



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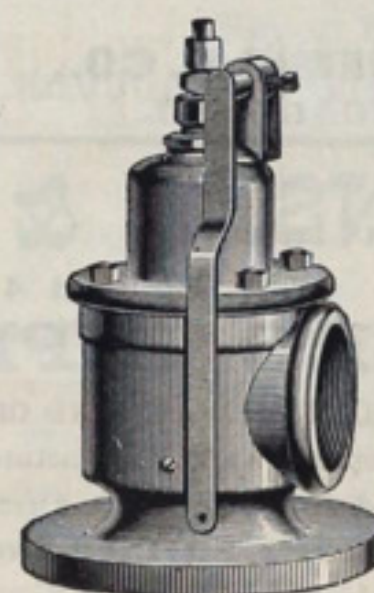
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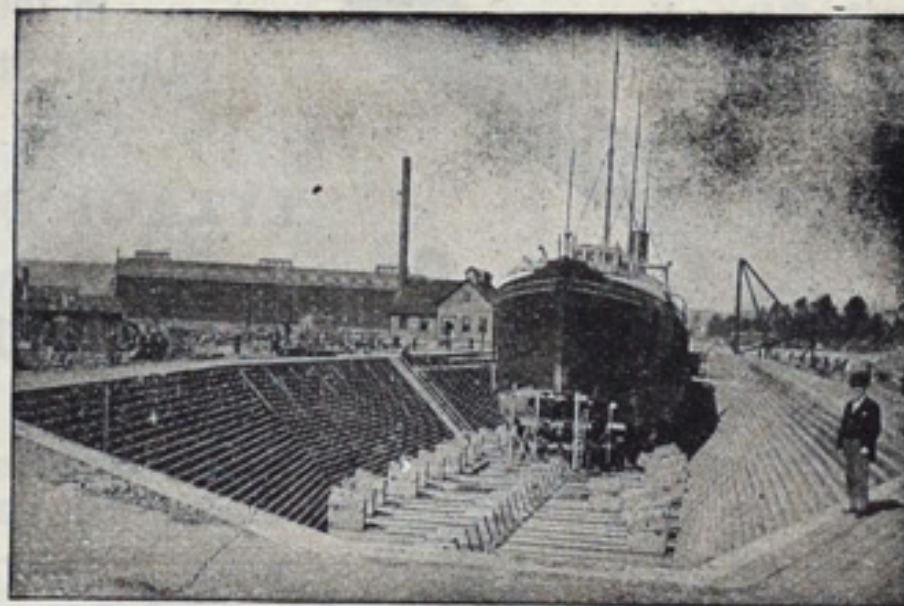
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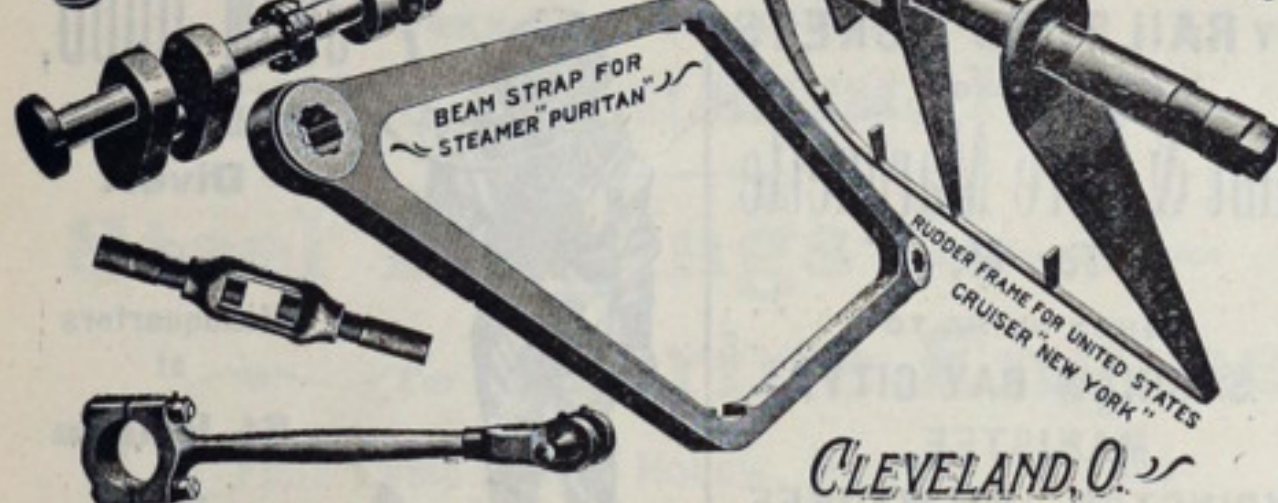
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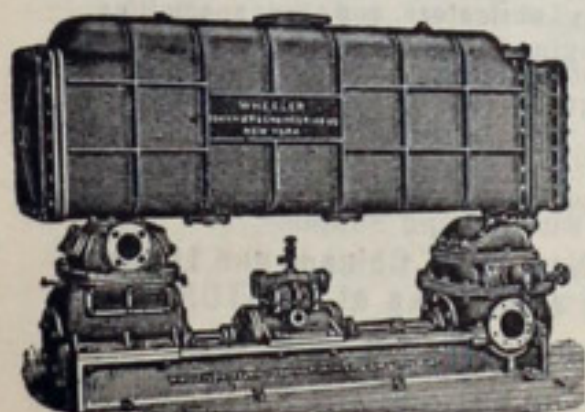
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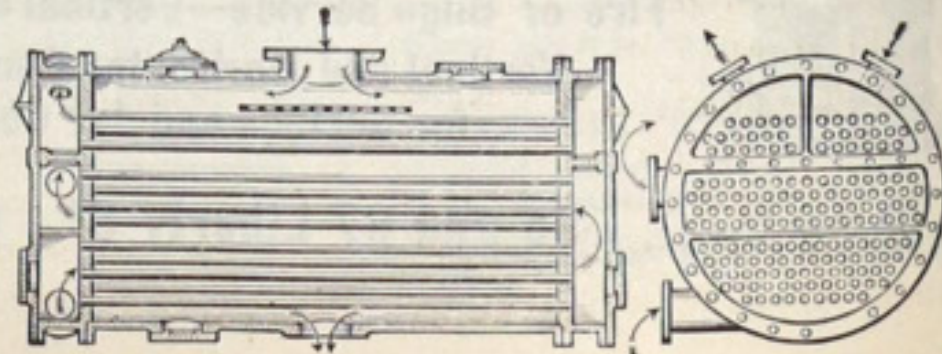
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